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INSTALLATION WARNINGS

1. SAFETY PRECAUTIONS

To limit the risk of personal injury, always follow these precautions before connecting TELCO circuits:

- a. Never install telephone wiring during a lightning storm.
- b. Never install telephone jacks in a wet location unless the jack is specifically designed for wet locations.
- c. Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- d. Use caution when installing or modifying telephone lines.
- e. Do not use this product near water, for example, near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement, or near a swimming pool.
- f. Do not use the telephone to report a gas leak in the vicinity of the leak.
- g. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.

2. **BATTERY BACKUP-CONNECTOR CAUTION:** To reduce risk of fire and injury to persons, use only a sealed nickel cadmium or lead-acid battery supply capable of handling a charge current of 0.4A, a abnormal charge current of 2.0A, charge voltage of -54 V dc and d discharge rated of 40 Ah.

3. **CAUTION:** Danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacture's instructions.

ATTENTION: Il y a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au rebut les batteries usages conformément aux instructions du fabricant.

4. **DISCONNECT DEVICE:** Disconnect Device is an Appliance Coupler.


5. **FUSE CAUTION:** Double pole / neutral fusing

+

ATTENTION: Double pole / fusible sur le neuter.

For continued protection against risk of fire, replace only with same type and rating of fuse.

Disconnect power before changing fuse.

6.  a. Provided with the current limitations and maximum overcurrent protection for telecommunication circuits.
- b. Reference to the specific power supply or current limiting device provided with the product
- c. Detailed instructions showing the proper method of installation and connections to the telecommunication wiring system.
7. A separate protective earthing terminal shall be provided in addition to the main protective earthing terminal is permanently connected to earth.

PART 1. SITE REQUIREMENTS

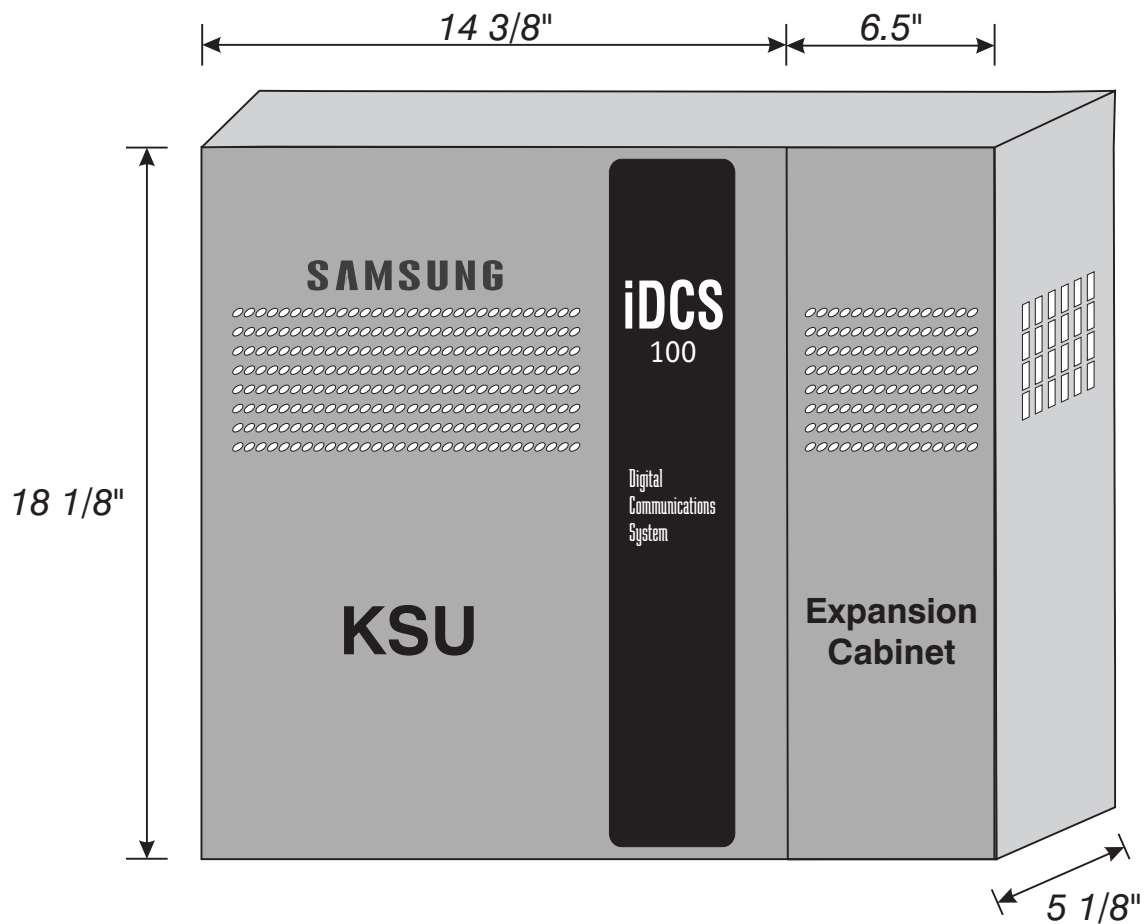
When planning the installation of the iDCS 100, choose a site that meets the following requirements:

- Select a location for the key service unit (KSU) that has enough space for easy installation and adequate lighting ([see Figure 1-1](#)).
- Select a location that will minimize cable lengths. [See the Cable Requirements table below.](#)
- The equipment should not be exposed to direct sunlight, corrosive fumes, dust, constant vibration or strong magnetic fields such as those generated by motors and copy machines.
- A direct commercial AC power outlet is required. Do not use extension cords. Preferably, a dedicated circuit should be used to minimize the risk of other electrical equipment being connected that could adversely affect system operation.
- Ensure that all wires and cables going to and coming from the KSU are properly routed. Do not cross fluorescent lights or run parallel with AC wires.
- The equipment must be located in an environment that will maintain a temperature range of 32°–104°F (0°–40°C) and a humidity range of 10%–90% non-condensing.
- Allow at least 6" clearance on both sides and 6" clearance on top of the KSU to ensure proper ventilation.
- Do not install in close proximity to a fire sprinkler head or other sources of water.

Meeting these requirements will help to ensure proper performance and greater life expectancy of the system.

CABLE REQUIREMENTS				
EQUIPMENT	CABLE	AWG	MAX FEET	MAX METERS
DIGITAL KEYSETS	1 PR. TWISTED	24	1300	400
ADD-ON MODULES	1 PR. TWISTED	24	1300	400
SINGLE LINE STATION	1 PR. TWISTED	24	3000	1 KM
DOOR PHONE	2 PR. TWISTED	24	330*	100

*This is the maximum distance a door phone can be from the DPIM. The DPIM can be a maximum of 900 cable feet from the KSU.



MAIN CABINET AND
EXPANSION CABINET
UNIT DIMENSIONS

FIGURE 1-1

PART 2. INSTALLATION OF BASIC KSU AND EXPANSION CABINET

2.1 UNPACKING AND INSPECTION

After unpacking the KSU, inspect for signs of physical damage. If any damage is detected, do not attempt to install. Contact SAMSUNG TELECOMMUNICATIONS AMERICA, Technical Support Department.

Check to see that the KSU carton includes the following items:

- Key service unit
- Wall-mount kit consisting of 4 screws
- Vinyl bag containing cable ties and a battery cable
- Power cord
- KSU mounting template

Check to see that the EXPANSION CABINET carton includes the following:

- Expansion cabinet
- Vinyl bag with screws and ferrite choke

2.2 KEY SERVICE UNIT INSTALLATION

The key service unit (KSU) must be wall-mounted. The KSU should be mounted on a plywood backboard at least $\frac{5}{8}$ " thick. Using the installation template or the diagram in [figure 2-1](#) mark the location for four mounting screws. Attach two mounting screws 12 7/8" apart horizontally to the blackboard. Next hang the KSU on the screws and secure it to the backboard with the remaining two screws ([see Figure 2-1](#)). Tighten all four screws to secure KSU in place.

2.3 EXPANSION CABINET INSTALLATION

1. Hang the expansion cabinet on the KSU bracket and attach it securely to the backboard with the two screws supplied ([see Figure 2-2A](#)).

NOTE: When you are adding an expansion cabinet to a system, please remember to remove the cable access breakout panels **BEFORE** attaching the expansion cabinet to the KSU. **DO NOT** cut the tabs on the bottom of the breakout-panels as this will leave a sharp edge that can cut into the cable. Instead bend the panel down out of the way.

2. Secure the expansion cabinet to the KSU by inserting the two short screws into the holes on the left of the expansion cabinet ([see Figure 2-2B](#)).

WARNING: The KSU must be turned off before proceeding. Plugging the cables into the KSU while it is turned on can result in electric shock and/or

equipment damage. If the expansion cabinet is being added to an existing system make sure the switch on the MEM card is turned ON before powering down the KSU to keep the customer data intact.

3. Connect the expansion cabinet to the basic KSU by plugging free end of the ribbon cable into the socket on the KSU motherboard [\(see Figure 2-3\)](#).
4. Connect the ground wire from the expansion cabinet to the screw in the top right hand corner of the KSU motherboard [\(see Figure 2-4\)](#).
5. Connect the two red and green cable pairs from the expansion cabinet to the connectors of the KSU motherboard [\(see Figure 2-3\)](#).
6. Install any new cards in the expansion cabinet and restore power to the system.

2.4 GROUNDING

An equipment grounding conductor that is not smaller in size than the ungrounded branch-circuit supply conductors is to be installed as part of the circuit that supplies the product or system. Bare, covered, or insulated grounding conductors are acceptable. Individually covered or insulated equipment grounding conductors shall have a continuous outer finish that is either green or green with one or more yellow stripes. The equipment grounding conductor is to be connected to ground at the service equipment.

The attachment-plug receptacles in the vicinity of the product or system are all to be of a grounding type, and the equipment grounding conductors serving these receptacles are to be connected to earth ground at the service equipment.

WARNING: HIGH LEAKAGE CURRENT! Earth connection is essential before connecting supply.

The iDCS 100 system requires that a supplementary [\(see below\)](#) earth ground be connected to the system. This is the preferred method of grounding the iDCS 100. It has been observed that the third wire ground may be inferior or can contain noise that may prevent the digital data bus from canceling out noise. This may result in erratic operation of the iDCS 100. Another problem that has occurred is that some UPS battery systems do not pass the ground through to the power cord resulting in no ground to the system. The grounding lug on the bottom of the left side of the cabinet must be connected to one of the following: bonded building steel, cold water pipe or a ground rod using at least #16 AWG copper wire [\(see Figure 2-5\)](#). Additionally, the ground between cabinets in a multiple cabinet system must also be at least #16 AWG copper wire. The third wire AC ground or FG is connected to the system frame via the ground strap from the ground connector on the AC socket.

A supplementary equipment grounding conductor shall be installed between the system and ground that is in addition to the equipment grounding conductor in the power supply cord.

The supplementary equipment grounding conductor shall not be smaller in size than the ungrounded branch-circuit supply conductors. The supplementary equipment grounding conductor shall be connected to the product at the terminal provided, and shall be connected to ground in a manner that will retain the ground connection when the product is unplugged from the receptacle. The connection to ground of the supplementary equipment grounding conductor shall be in compliance with the rules for terminating bonding jumpers in Part K of Article 250 of the National Electrical Code ANSI/NFPA 70. Termination of the supplementary equipment grounding conductor is permitted to be made to building steel, to a metal electrical raceway system, or to any grounded item that is permanently and reliably connected to the electrical service equipment ground.

Bare, covered, or insulated grounding conductors are acceptable. A covered or insulated grounding conductor shall have a continuous outer finish that is either green or green with one or more yellow stripes.

Failure to provide an adequate ground may cause a safety hazard, confusing trouble symptoms or even circuit card failure.

WARNING: Unplug the power cord from the AC outlet before attempting to connect the ground. Hazardous voltage may cause death or injury. Observe extreme caution when working with AC power. Remove champ connectors from trunk cards.

What the above paragraphs mean is when conventional analog telephone circuits are connected to the iDCS 100 system, under fault conditions (i.e., the tip and/or ring conductor is crossed with a power line, or the circuit is affected by lightning during a storm), it is possible for hazardous potentials to appear across the tip and ring wiring coming into the iDCS 100 cabinet(s) from the outside plant (i.e., overhead cables, buried cables, cable head pedestal). These circuits are provided with both primary and secondary protection circuitry which will attempt to drain off these high voltages and currents to earth ground. Obviously, it is important to have a good source of ground connected to the iDCS 100 system to drain this energy off. Also, certain metallic analog circuits (e.g., E & M trunks) require a current flow to earth ground to accommodate normal operating conditions and/or to resolve fault conditions. Again, a good earth ground source is required by the iDCS 100 system.

The iDCS 100 system has two ground reference points. One point is via the green wire in the power cord connected to the AC power outlet. This ground connection is provided to meet local electrical codes when the AC ground is required to be common with the earth ground. However, this can be disconnected either intentionally or unintentionally. Consequently, a more permanent ground connection is required by

connecting a high current/voltage capacity ground wire which is bonded to ground at the electric service power entrance or via some other method approved by the National Electrical Code to the iDCS 100 system ground lug. This is a more secure ground connection, which can only be disconnected intentionally. These precautions are taken for safety reasons to protect personnel working on the iDCS 100 system and also for operational reasons to accommodate ground return and/or ground-referenced analog telephone circuits, which require this solid earth ground connection for normal functioning.

2.5 MDF CABLING

All connections to the iDCS 100 system are made by way of a customer-provided main distribution frame (MDF). The KSU is connected to the MDF using two 25 pair male amphenol-type cables and the expansion cabinet is connected to the MDF using a 25 pair male amphenol-type cable. These cables can be routed into the KSU cabinet from below.

NOTE 1: The iDCS 100 requires the use of amphenol cables with MALE connectors.

NOTE 2: Before plugging the MDF cables into the KSU you must remove the cover plate on the bottom of the KSU to allow the KSU cover to close correctly. You may replace the cover plate to secure the cables when you have finished.

Label each cable to correspond with the connector numbers ([see Figure 2-6](#)). Label each 66 type-terminating block with the same connector number with which the cable is labeled.

Use one pair twisted jumper wire to cross-connect stations or lines to their associated port.

2.6 POWER CONNECTIONS

• AC POWER CORD ASSEMBLY

The AC Power Cord Assembly plugs into the AC power socket which is located on the left side of the cabinet. The AC connection is a standard 16 AWG computer type power cord.

WARNING: DO NOT CONNECT AC POWER TO THE SYSTEM ([see Section 4, Power Up Procedures](#))

- **FUSE**

CAUTION:

Double pole / neutral fusing
+

ATTENTION:

Double pole / fusible sur le neuter.

CAUTION:

1. For continued protection against risk of fire, replace only with same type and rating of fuse.
2. DISCONNECT POWER BEFORE CHANGING FUSE.



The current limitations and maximum overcurrent protection for telecommunication circuits reference to the specific power supply or current limiting device provided with the product detailed instructions showing the proper method of installation and connections to the telecommunication wiring system.

- **POWER SUPPLY UNIT (iDCS PWR)**

The iDCS PWR is the power supply for the iDCS 100 KSU. The iDCS PWR can accommodate a maximum of 48 keysets without an SVMi-8 and 40 keysets with an SVMi-8. The power supply is permanently installed in the KSU, and is protected by a metal cover. The power supply should only be removed by a qualified service personnel.

WARNING: DO NOT CONNECT AC POWER TO THE SYSTEM ([see Section 4, Power Up Procedures](#))

- **EXTERNAL -48VDC BATTERY SOURCE**

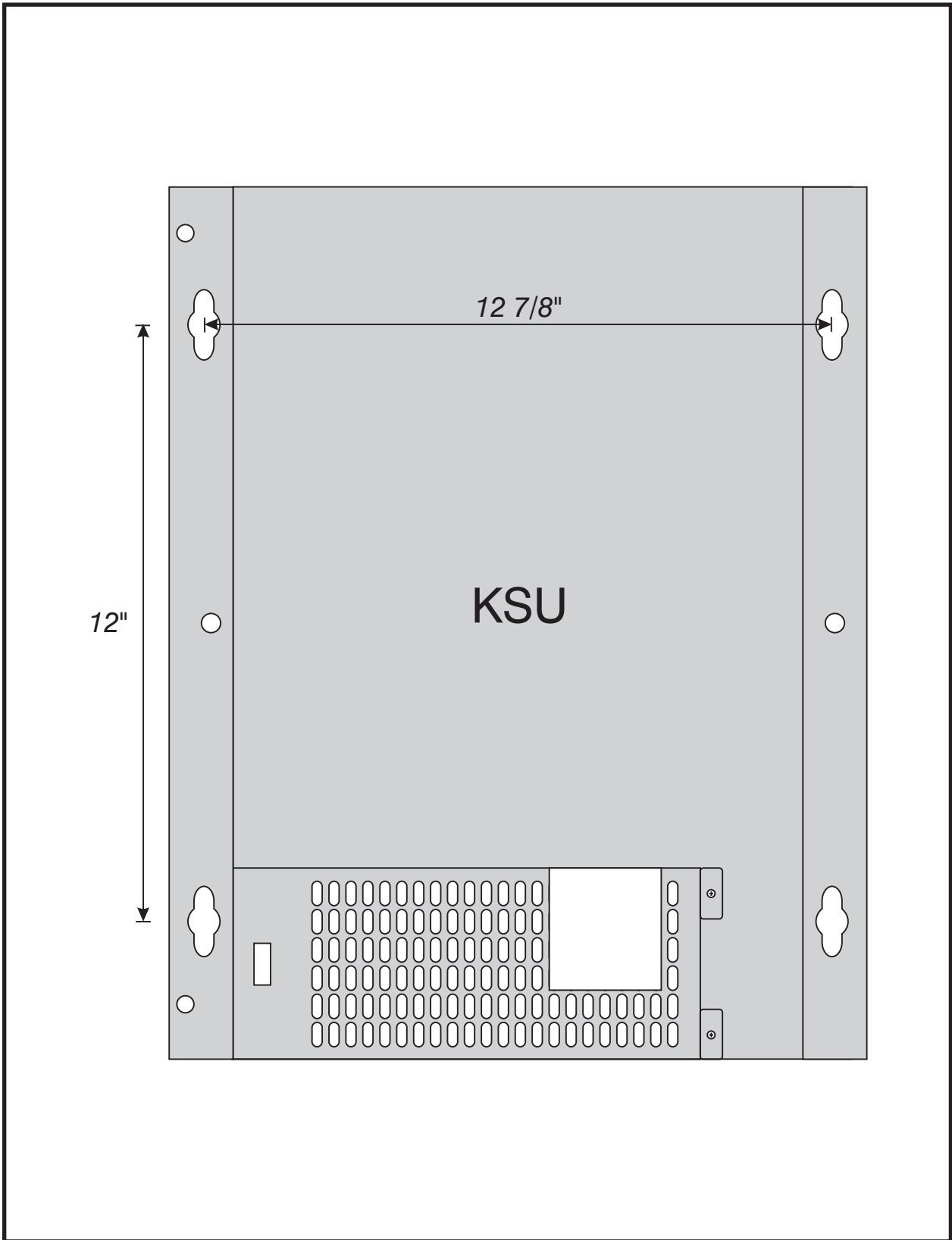
CAUTION: To reduce risk of fire and injury to persons, use only a sealed nickel cadmium or lead-acid battery supply capable of handling a charge current of 0.45 A, a charge voltage of -56 VDC and a discharge rate of 45 Ah.”

The iDCS 100 provides for connection of an external battery plant (i.e. to provide -48VDC to power the system). The iDCS PWR provides -56VDC at 0.4 amperes charging current (i.e. when AC power is present) which allows for float charging from the iDCS 100 to emergency backup batteries. The iDCS 100 can also run without AC power on a -48VDC battery system or rectifier. There should be no more than a -0.5VDC drop in voltage from the iDCS 100 and the batteries. Ensure polarity prior to connecting the external -48VDC power source to the system.

The -48VDC cable assembly has a male 2 pin connector on the iDCS PWR. Insert this end of the DC cable into the battery (BATT) connector found on the iDCS PWR ([see Figure 2-7](#)). Attach the other end of the DC power cable to the -48VDC power source.

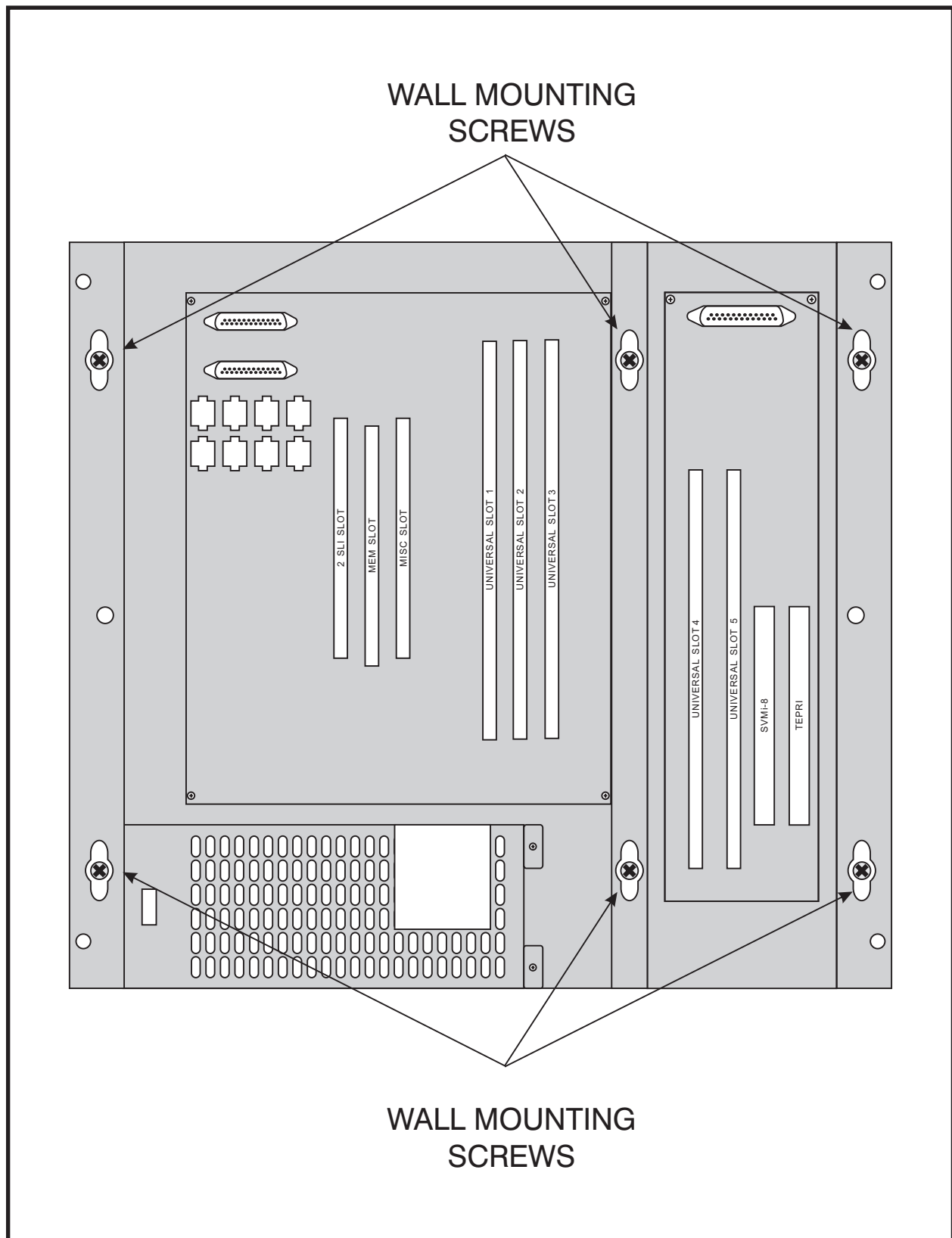
WARNING: Be sure the proper polarity is observed. Equipment damage will result if polarity is reversed. Do not connect external AC or DC power to the System ([see Section 4 Power Up Procedures](#)).

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.



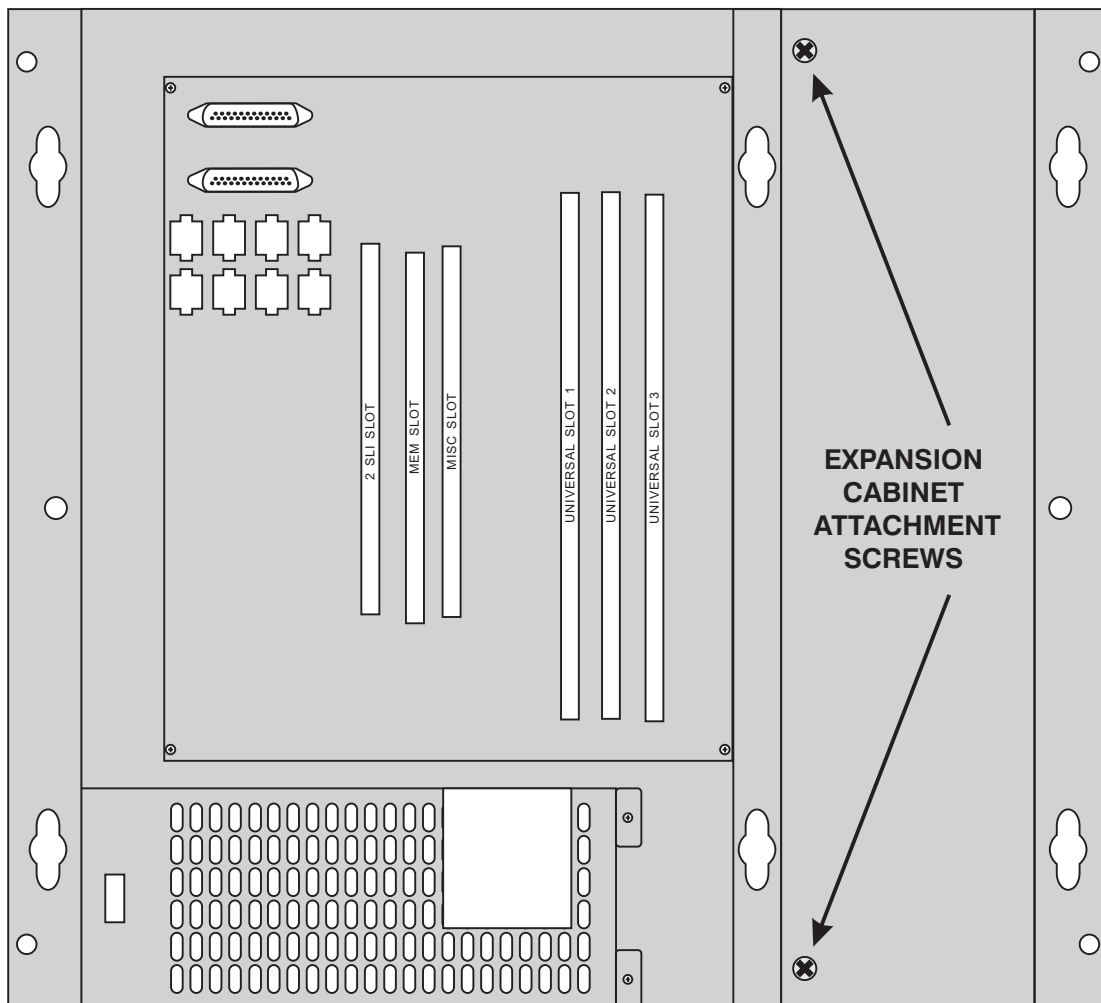
MDF SCREWS LOCATION

FIGURE 2-1



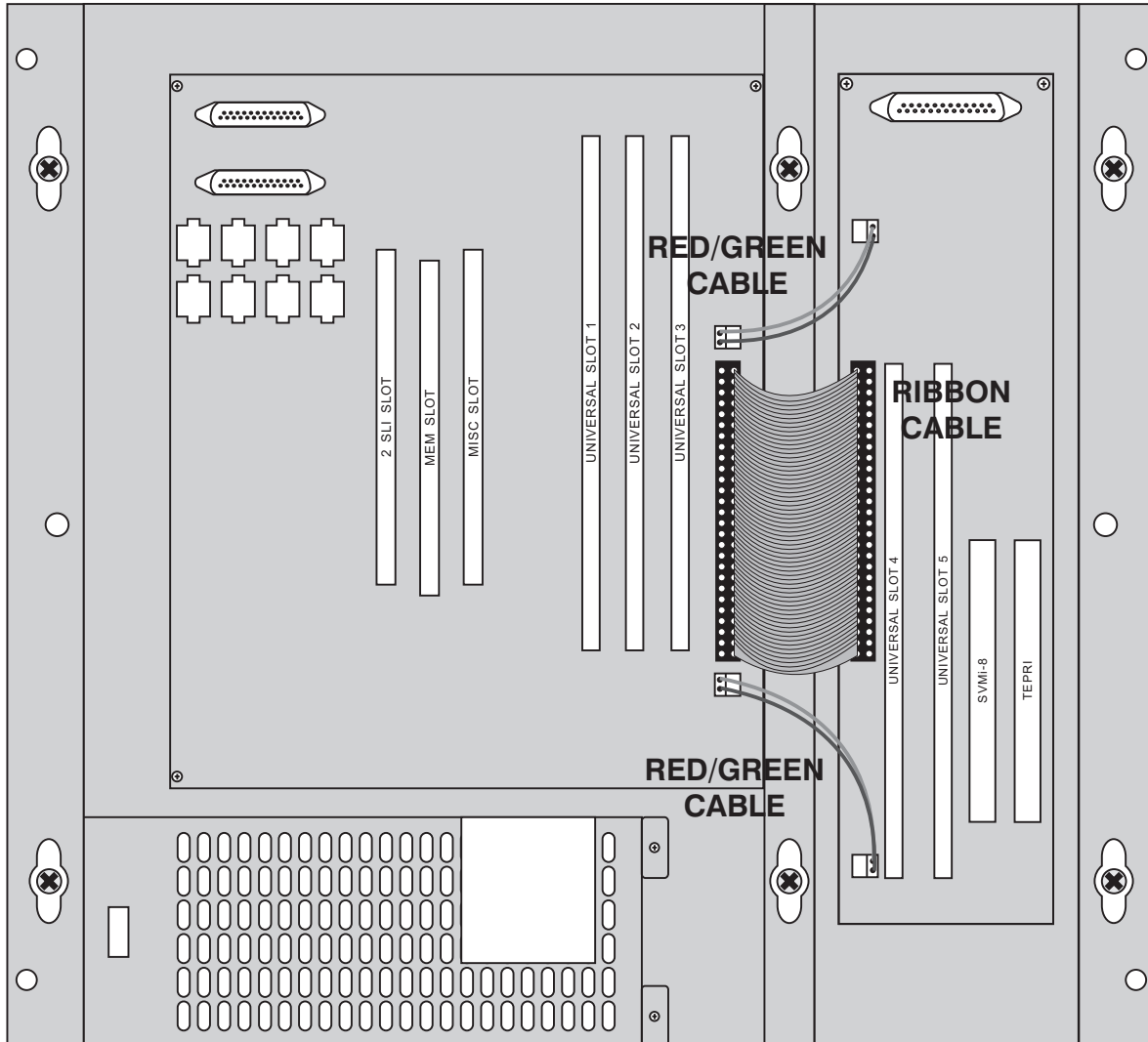
KSU AND EXPANSION CABINET
WALL MOUNTING

FIGURE 2-2A



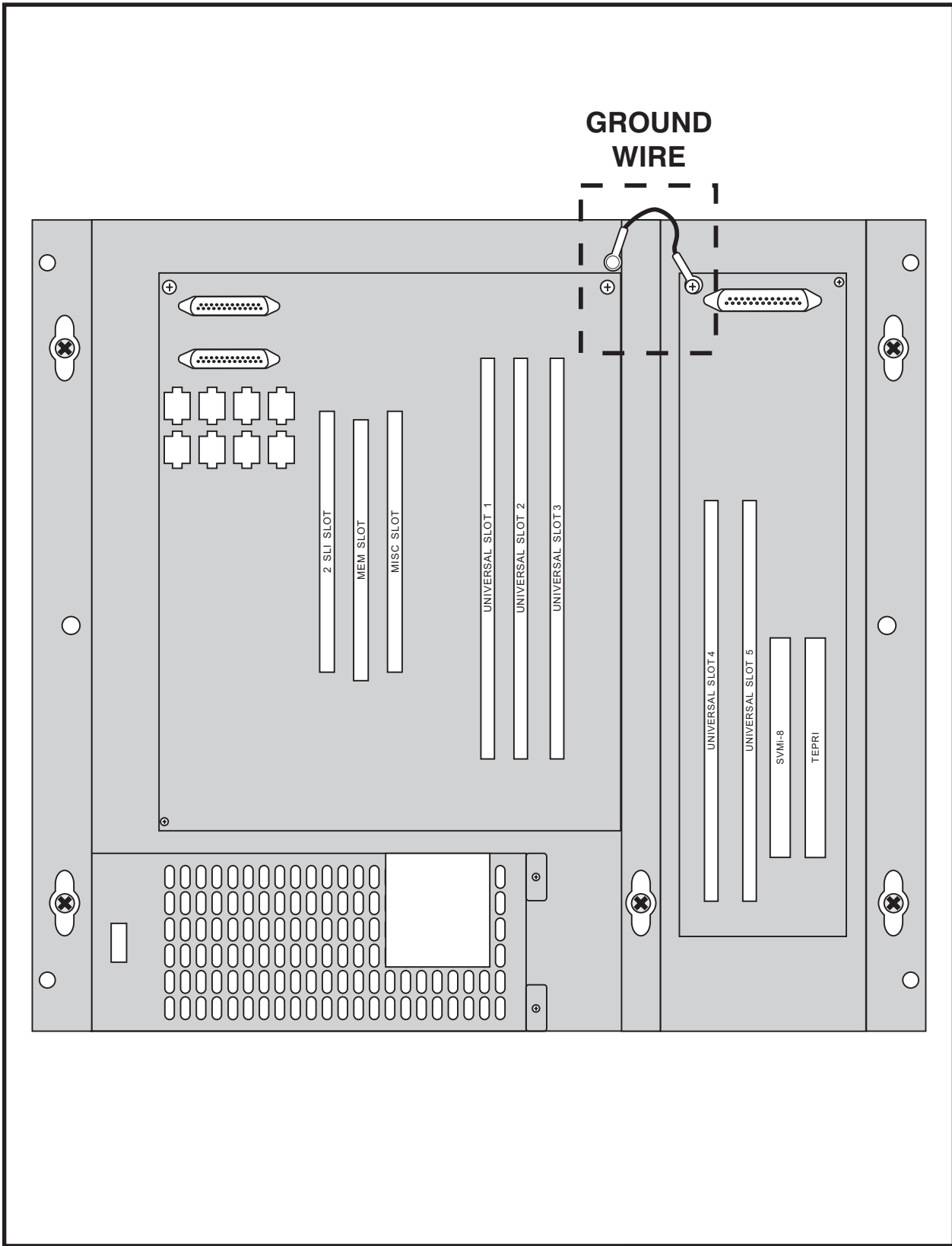
EXPANSION CABINET
MOUNTING

FIGURE 2-2B



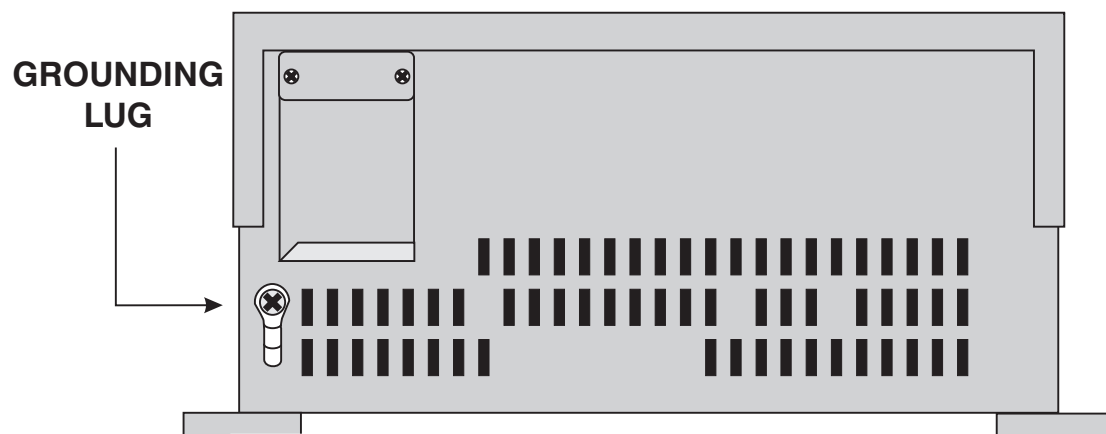
RIBBON CABLE AND RED/GREEN
CABLE PAIR CONNECTION
EXPANSION CABINET TO KSU

FIGURE 2-3



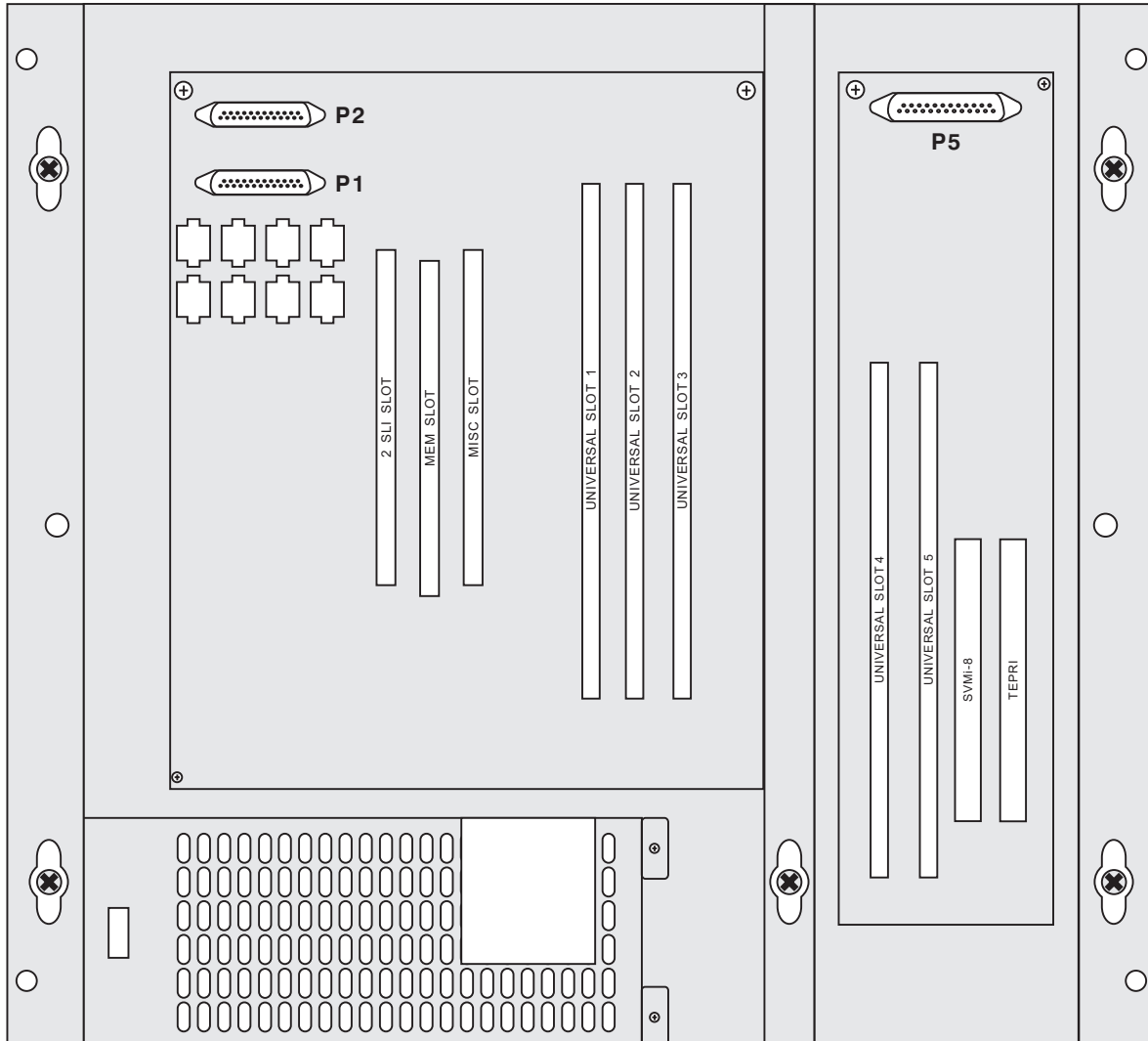
EXPANSION CABINET
GROUND WIRE TO KSU

FIGURE 2-4



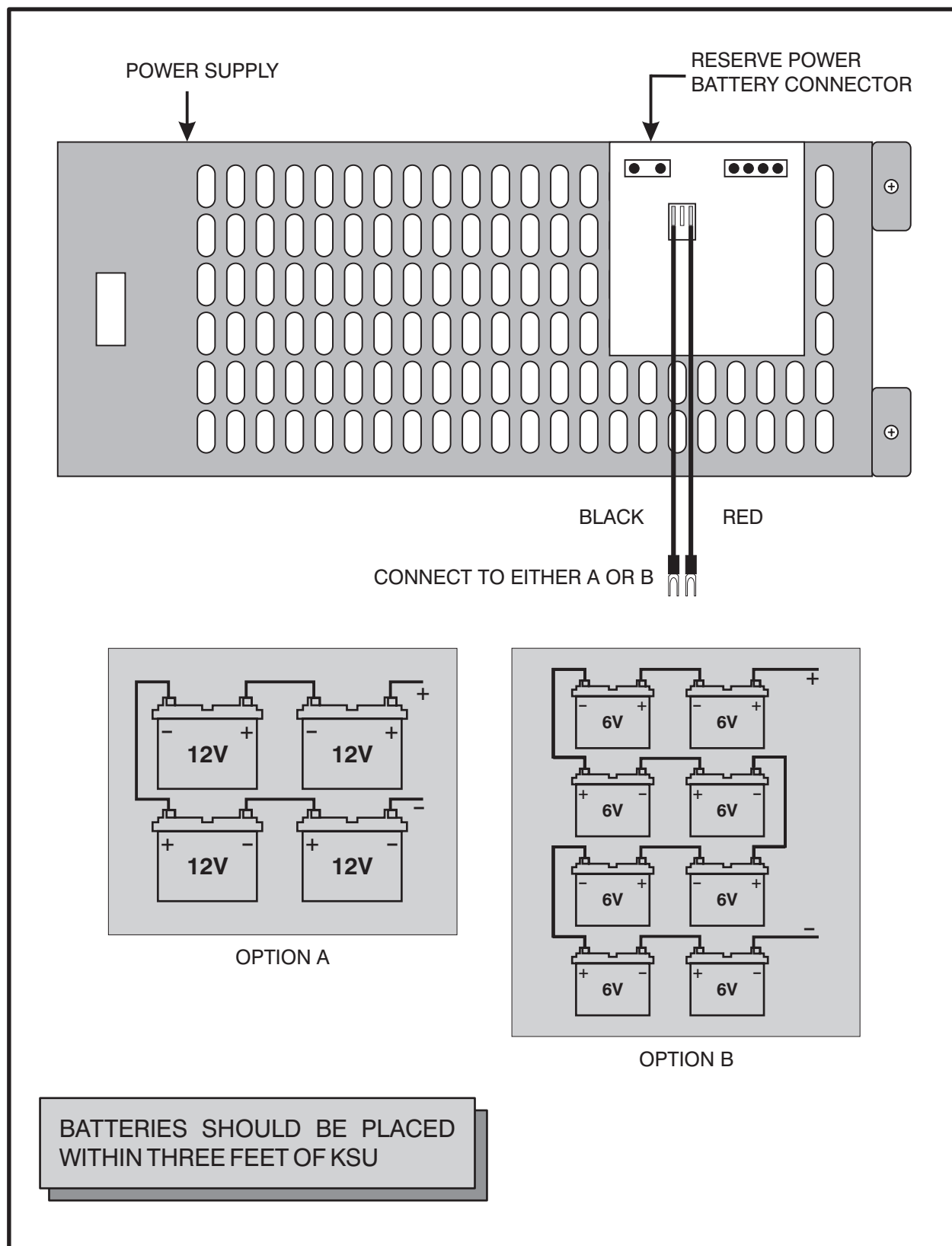
BOTTOM VIEW
KSU GND LUG

FIGURE 2-5



CONNECTOR DESIGNATOR

FIGURE 2-6



RESERVE POWER BATTERY
CONNECTIONS

FIGURE 2-7

PART 3. INSTALLING PRINTED CIRCUIT CARDS

Unpack and inspect each card before installing. Check for signs of physical damage. If any damage is detected, do not attempt to install. Contact Samsung Technical Support immediately.

3.1 iDCS MEM3 CARD ([Figure 3-2](#))

Make sure that the BACK UP switch is in the OFF position. Insert the iDCS MEM3 card in the KSU slot labeled MEM ([see Figure 3-1](#)). Push firmly in the middle of both card ejectors on the iDCS MEM3 card to ensure that it is fully inserted into the backplane connector.

To prevent accidental damage to the iDCS MEM3 card, the MEM connector on the backplane is positioned to mate only with memory cards. Other interface cards will not mate with this connector and the iDCS MEM3 card will not mate with any other connector.

3.2 iDCS MEM4 CARD ([Figure 3-3](#))

Make sure that the BACK UP switch is in the OFF position. Insert the iDCS MEM4 card in the KSU slot labeled MEM ([see Figure 3-1](#)). Push firmly in the middle of both card ejectors on the iDCS MEM4 card to ensure that it is fully inserted into the backplane connector.

To prevent accidental damage to the iDCS MEM4 card, the MEM connector on the backplane is positioned to mate only with memory cards. Other interface cards will not mate with this connector and the iDCS MEM4 card will not mate with any other connector.

3.3 2 SLI CARD ([Figure 3-4](#))

This card has no selectable options. Insert the 2 SLI card into the appropriate slot ([see Figure 3-1](#)). Push firmly in the middle of both card ejectors to ensure that it is fully inserted into the back plane connector.

3.4 SMISC1 CARD ([Figure 3-5](#))

There are no options to select on this card. Insert the SMISC1 card into the appropriate slot ([see Figure 3-1](#)). Push firmly in the middle of both card ejectors to ensure that it is fully inserted into the back plane connector.

NOTE: Only one SMISC1/2 card can be installed in a system.
Install the SMODEM card, if required, onto the SMISC card before installing the SMISC card.

3.5 SMISC2 CARD [\(Figure 3–5\)](#)

The Auto Attendant Message Memory backup switch should be turned ON to protect the customer-recorded messages in the event of a power failure. This can be done before or after the card is installed, as the switch is easily accessible. Insert the SMISC2 card into the appropriate slot [\(see Figure 3–1\)](#). Push firmly in the middle of both card ejectors to ensure that it is fully inserted into the back plane connector.

NOTE: Only one SMISC1/2 card can be installed in a system.
Install the SMODEM card, if required, onto the SMISC card before installing the SMISC card.

3.6 2 X 4 DLI CARD [\(Figure 3–6\)](#)

This is the same card as used on the DCS Compact. There are no options to select on this card. Insert the 2 X 4 DLI card into any universal slot in the KSU or expansion cabinet [\(see Figure 3–1\)](#). Push firmly in the middle of both card ejectors on each card to ensure that it is fully inserted into the back plane connector.

3.7 S8DLI CARD [\(Figure 3–6\)](#)

There are no options to select on this card. Insert the S8DLI card into any universal slot in the KSU or expansion cabinet [\(see Figure 3–1\)](#). Push firmly in the middle of both card ejectors on each card to ensure that it is fully inserted into the back plane connector.

3.8 2 X 4 SLI CARD [\(Figure 3–7\)](#)

This is the same card as used on the DCS Compact. There are no options to select on this card. Insert the 2 X 4 SLI card into any universal slot in the KSU or expansion cabinet [\(see Figure 3–1\)](#). Push firmly in the middle of both card ejectors on each card to ensure that it is fully inserted into the back plane connector.

3.9 S8SLI CARD [\(Figure 3–7\)](#)

There are no options to select on this card. Insert the S8SLI card into any universal slot in the KSU or expansion cabinet [\(see Figure 3–1\)](#). Push firmly in the middle of both card ejectors on each card to ensure that it is fully inserted into the back plane connector.

3.10 S3TRK CARD [\(Figure 3–8\)](#)

There are no options to select on this card. Insert the S3TRK card into any universal slot in the KSU or expansion cabinet [\(see Figure 3–1\)](#). Push firmly in the middle of both card ejectors on each card to ensure that it is fully inserted into the back plane connector.

3.11 S6TRK CARD ([Figure 3–8](#))

There are no options to select on this card. Insert the S6TRK card into any universal slot in the KSU or expansion cabinet ([see Figure 3–1](#)). Push firmly in the middle of both card ejectors on each card to ensure that it is fully inserted into the back plane connector.

3.12 2 E&M 4 DLI CARD ([Figure 3–9](#))

This is the same card as used on the DCS Compact. The E&M trunk circuits on this card can be set to provide either Type 1 or type 5 operation. Type 1 operation is used when connecting to Telco circuits and type 5 is used when connecting “back to back” across a private cable. Set the jumpers located between the two relays ([see Figure 3–9](#)) according to the table below. Both of the jumpers for each circuit must be set to the same type for correct operation.

CIRCUIT	JUMPER	POSITION	TYPE
1	J1	T1	TYPE 1
1	J1	T5	TYPE 5
1	J2	T1	TYPE 1
1	J2	T5	TYPE 5
2	J3	T1	TYPE 1
2	J3	T5	TYPE 5
2	J4	T1	TYPE 1
2	J4	T5	TYPE 5

WARNING: Turn the system off and remove the card from the system before attempting to change jumper settings. 48 volts is present on the jumpers at all times the system is turned on.

NOTE: When set to TYPE 1 the E&M Tie line circuits on this card are USOC TYPE TL11M.

Insert the 2 E&M X 4 DLI card into any universal slot in the KSU or expansion cabinet ([see Figure 3–1](#)). Push firmly in the middle of both card ejectors on each card to ensure that it is fully inserted into the back plane connector

3.13 S4BRI CARD [\(Figure 3-10\)](#)

The S4BRI card is equipped with dip switch controlled line termination resistors. If a BRI circuit is to be used as a Trunk circuit these switches must be in the OFF position. If a circuit is to be used as a station then the dip switches for that circuit must be in the ON position.

CIRCUIT	DIP SWITCH
1	SW 1
2	SW 2
3	SW 3
4	SW 4

NOTE: In order for BRI circuits to operate the system must have an SPLP board installed in the KSU.

3.14 iDCS TEPRI CARD [\(Figure 3-11\)](#)

Removing the Cover

Before the iDCS TEPRI card can be installed in the iDCS 100 the card module must first be disassembled to allow the card to fit the slot. To disassemble the iDCS TEPRI card, first remove the ejector tabs by pulling them outward until they snap off. Next, to separate the two halves of the casing, remove the four screws and pull the two halves apart. This releases the iDCS TEPRI card PCB.

Installing the Card

The iDCS 100 system must be equipped with an expansion cabinet (Type-A or Type-B), and only one iDCS TEPRI card may be installed in the system. The iDCS TEPRI supports either T1 or ISDN PRI service. The first four LEDs on the front of the card provide the status of the service (Sync, AIS, Loss and Layer 2 Active states). The second four LED's on the front of the card display the type of service. There are two RJ45 modular jacks on the face of the card. The settings for T1 or PRI service are selected by a bank of dip switches as defined below. The PRI supports NI1, NI2, AT&T No. 5 ESS, and DMS 100 offices. Push firmly in the middle of the card to ensure that it is fully inserted into the back plane connector.

Notes: A Rev. 04 or later TEPRI card must be used.
 Do not insert card with system power ON.
 In order for the TEPRI circuits to operate the system must have a SPLP board installed in the KSU.

iDCS TEPRI CARD DIP SWITCH

Switch No.	ON	OFF
1	T1	E1
2	PRI	T1
3	NFAS (24B)	NFAS (23B + D)
4	NETWORK	USER
5	AFT	NORMAL
6	Switch 6 must be OFF	
7	Switch 7 must be OFF	
8	Switch 8 must be ON	

iDCS TEPRI LED DEFINITIONS

LED Name	Function	Status	
		Normal Status	Error Status
SYN	Synchronization Loss. Indicates wander or loss of framing.	OFF	ON
LOS	Loss of Signal. No PCM Clocking is being received.	OFF	ON
AIS	Alarm Indicating Signal. Indicating that all one's are being received.	OFF	ON
L2	Layer 2 is active. PRI messaging is being received.	OFF	ON
IPC	IPC link set up.	OFF / IPC link set up	
CLK	Card clock status.	OFF/CARD is secondary source ON card is primary source.	
MODE	LED's TP1 & TP2 show the span type	TP1	TP2
	E1 mode	OFF	OFF
	E1 PRI mode	OFF	ON
	T1 mode	ON	OFF
	T1 PRI mode	ON	ON

3.15 SPLL DAUGHTER BOARD ([Figure 3–12](#))

There are no options to select on this card. Insert the SPLL daughter board onto its connectors in the bottom left hand corner of the KSU motherboard ([see Figure 3–13](#)). Push firmly in the middle of both the connectors to ensure that it is fully inserted into the back plane connector.

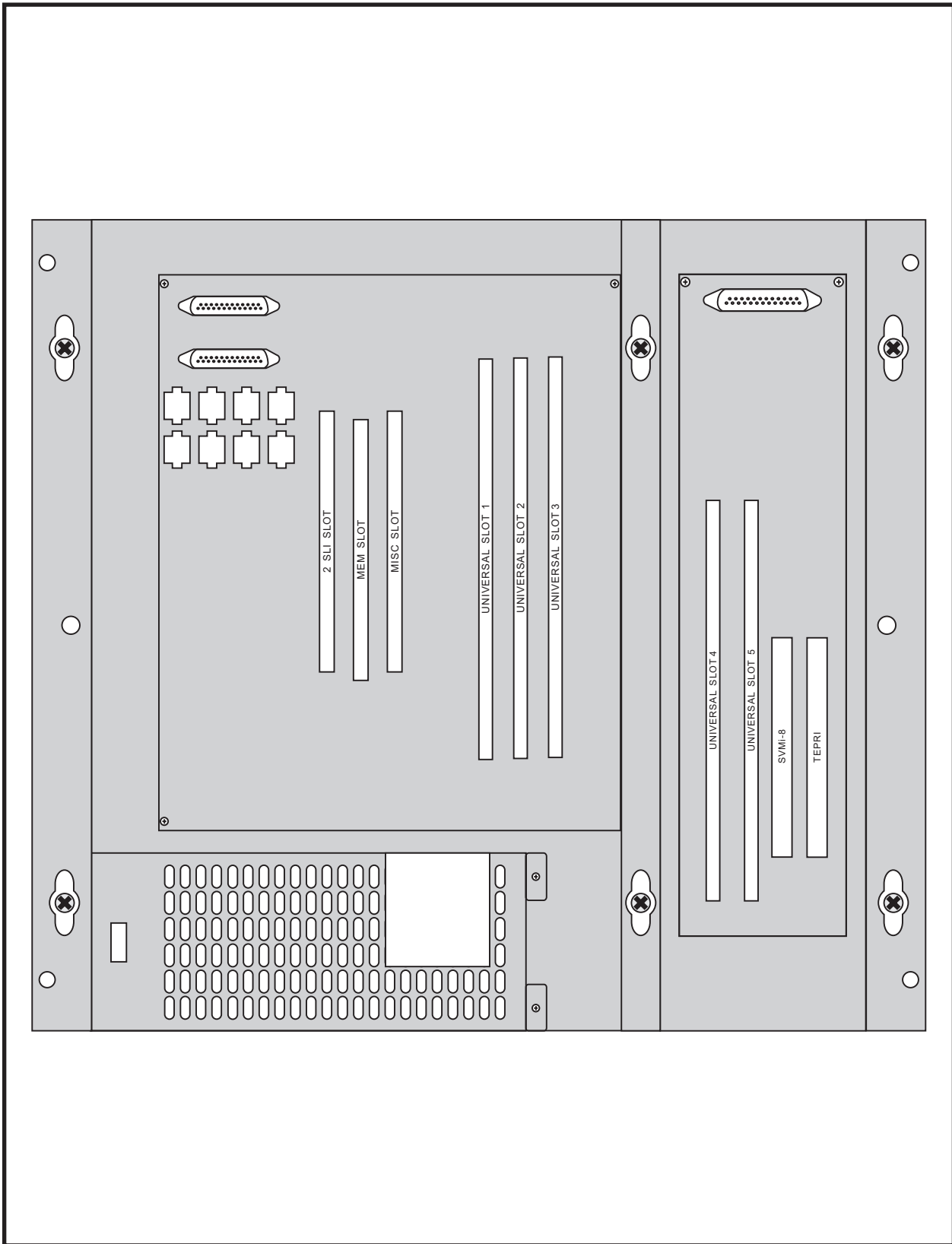
3.16 MODEM CARD ([Figure 3–14](#))

There are no options to select on this card. Install the modem card onto its connectors on the SMISC card ([see Figure 3–15](#)). Press firmly on both corners above the connectors to ensure that it is fully inserted on to the SMISC connectors.

3.17 IP TELEPHONY MODULE (ITMC) ([Figure 3–16](#))

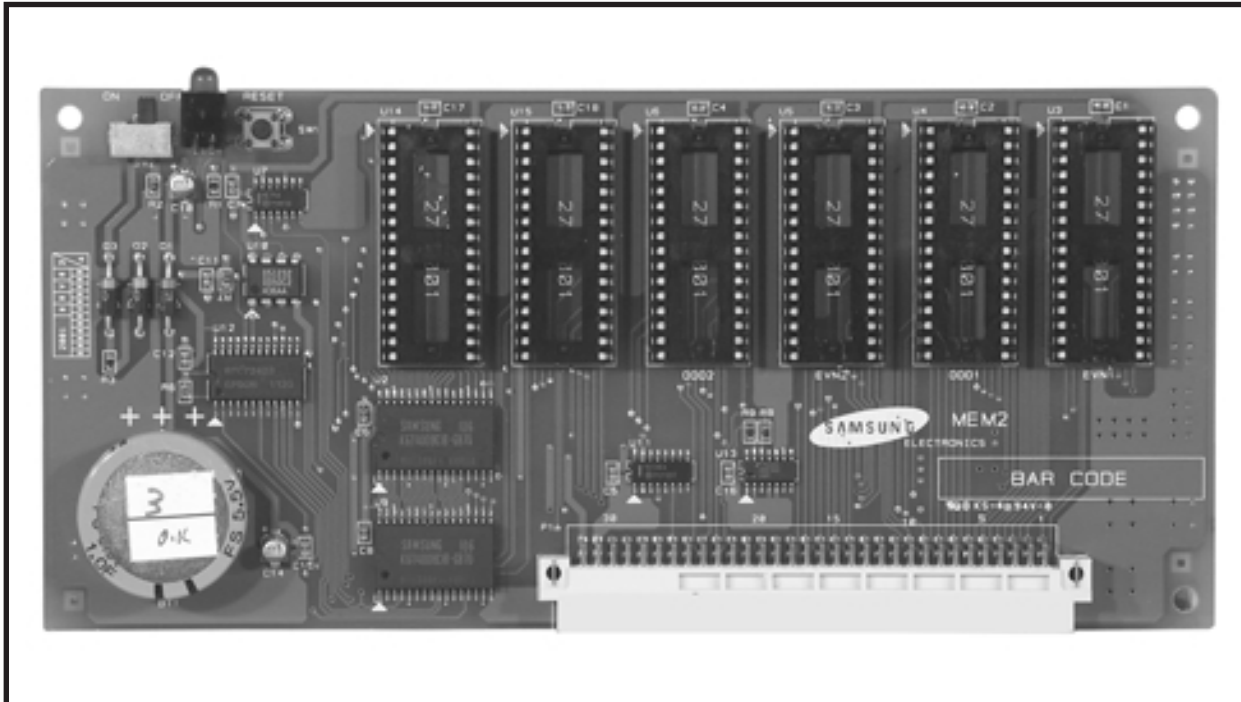
There are no options to select on the ITMC card and its capacity is 8 channels. The card has eight (8) LEDs on its faceplate to indicate the status of the card. These indications are described below. Insert the card into any universal card slot within the main KSU (not expansion cabinet). [See Figure 3–1](#). Push firmly in the middle of both card ejectors to ensure the card is firmly seated into the back plane connector.

LED Name	Function	Status
PWR	Power State	OFF Power is OFF ON Power is ON
RUN	Processor Status	OFF Power is OFF ON Card is booting Flicker Normal Operation
RX	LAN TX State	
TX	LAN RX State	
SPD	LAN Speed	OFF 10 MBPS ON 100 MBPS
L1	Future	
L2	Future	
L3	Future	



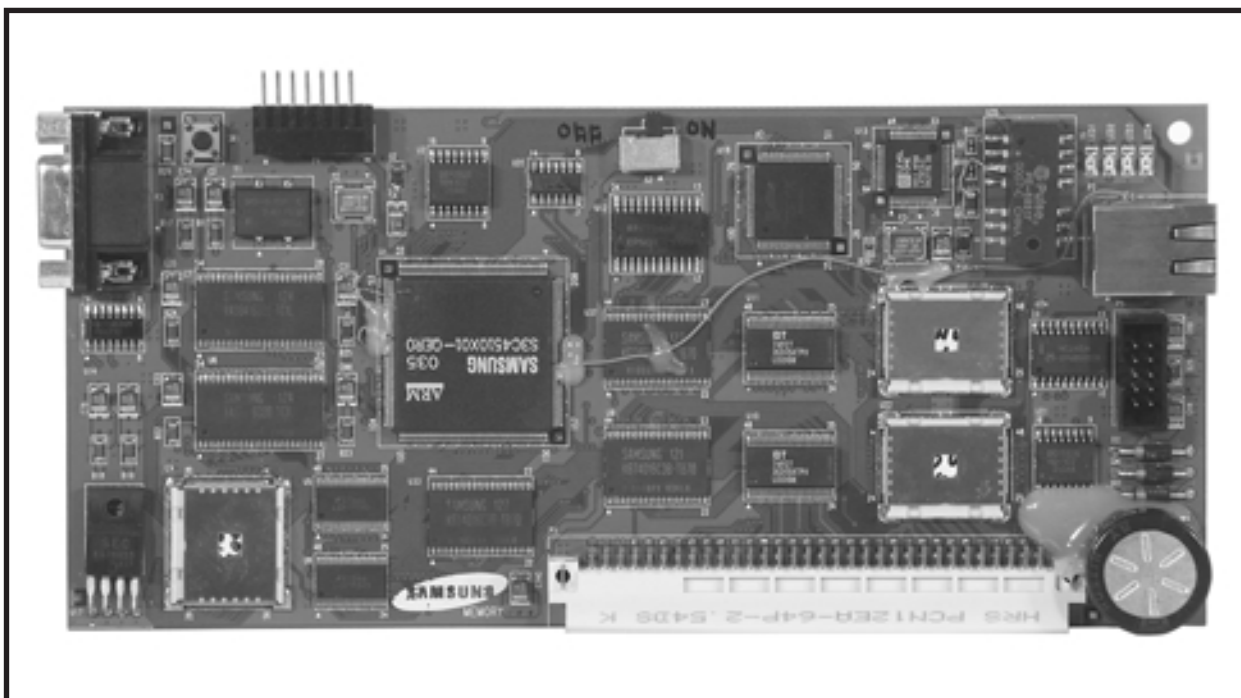
KSU AND EXPANSION
CABINET SLOT POSITIONS

FIGURE 3-1



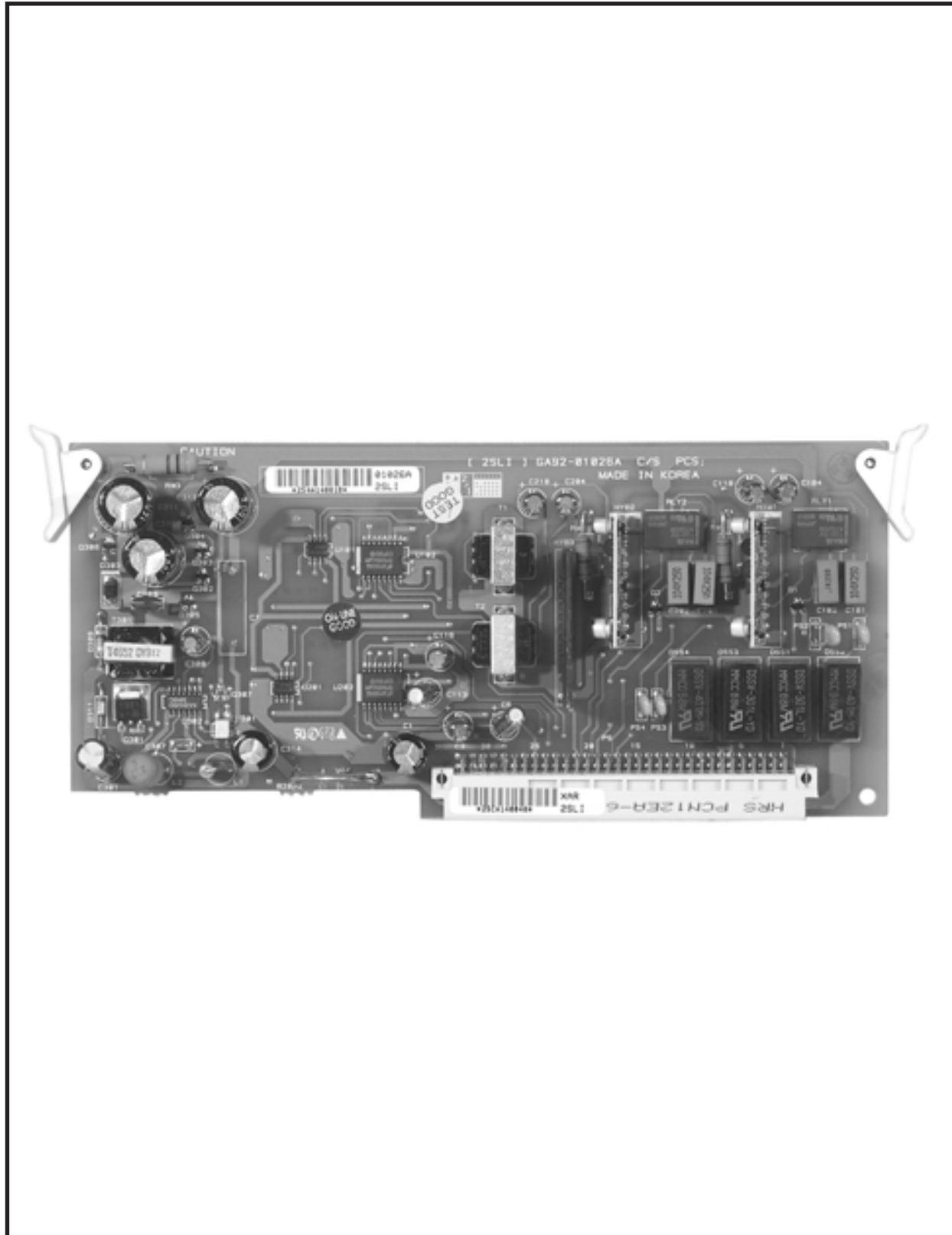
iDCS MEM3 CARD

FIGURE 3-2



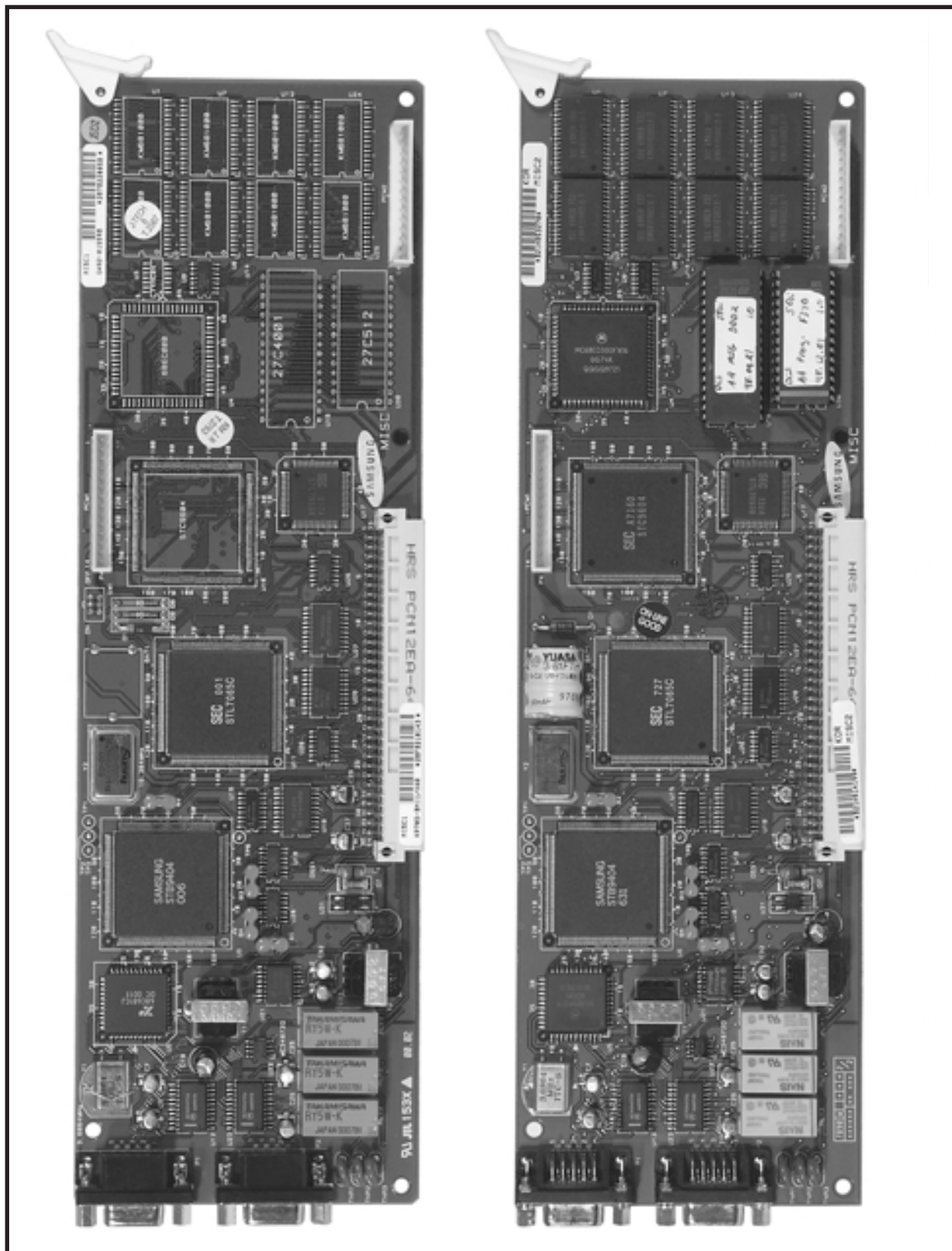
iDCS MEM4 CARD

FIGURE 3-3



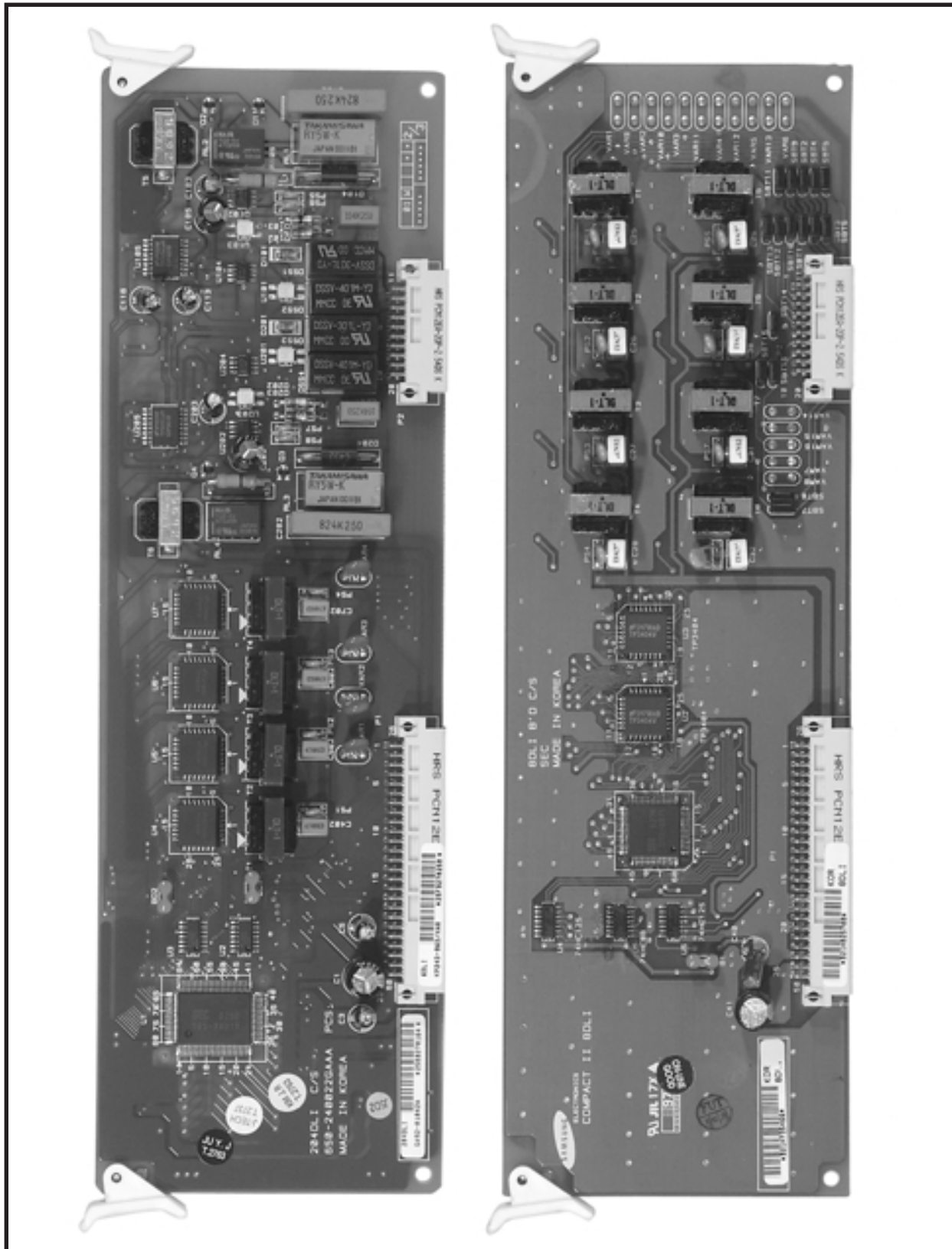
2 SLI CARD

FIGURE 3-4



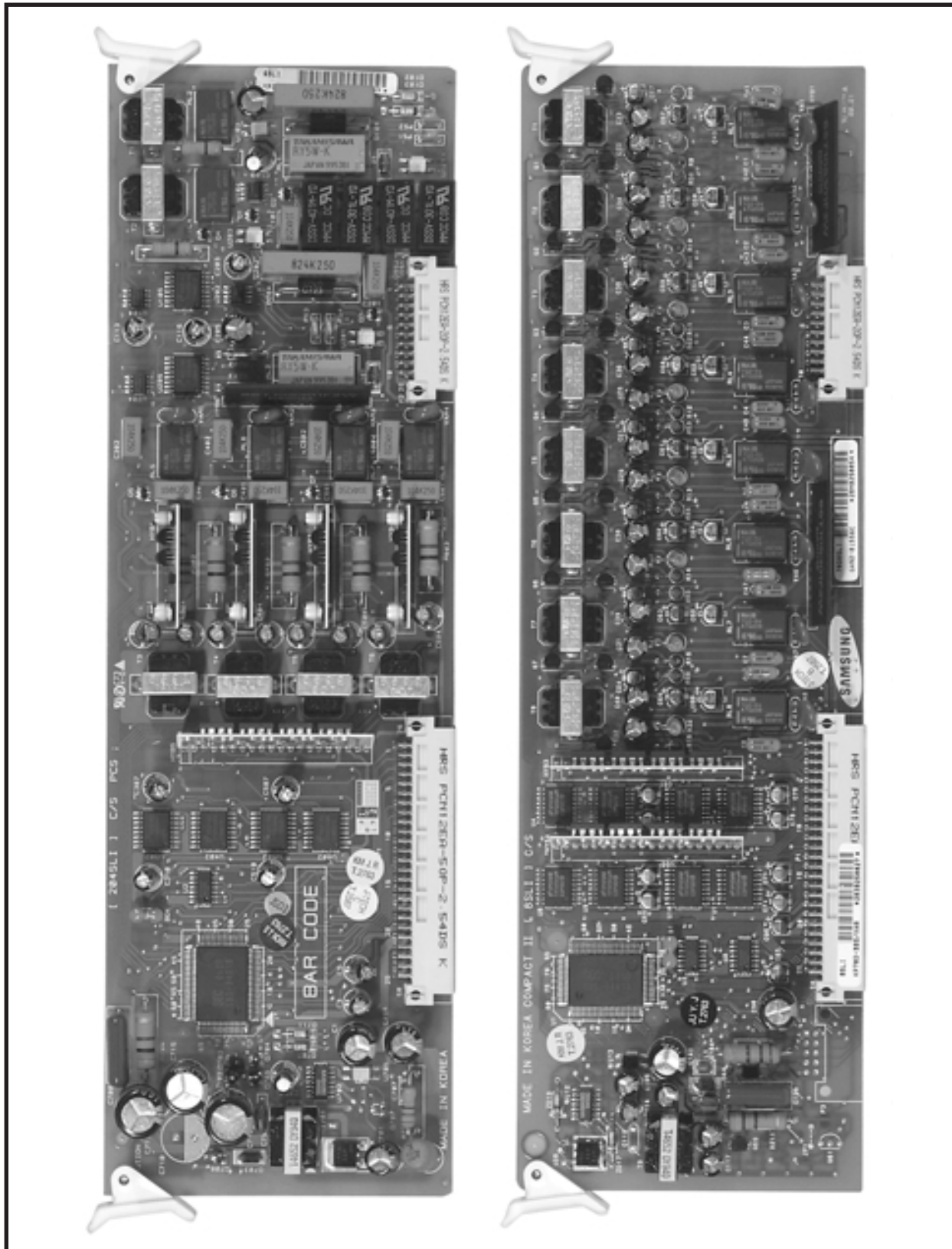
SMISC 1 AND 2 CARDS

FIGURE 3-5



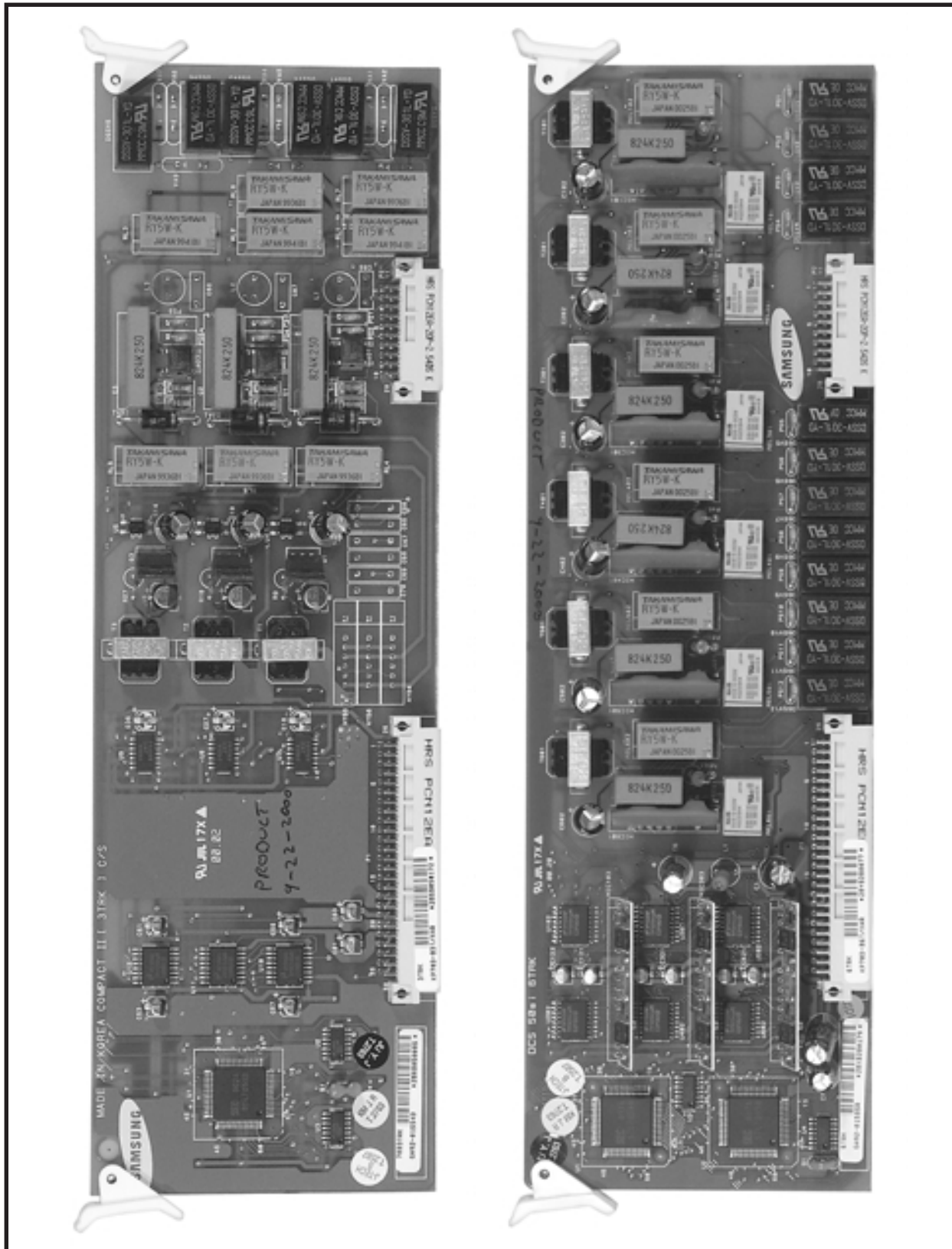
2 X 4 DLI CARD AND S8DLI CARD

FIGURE 3-6



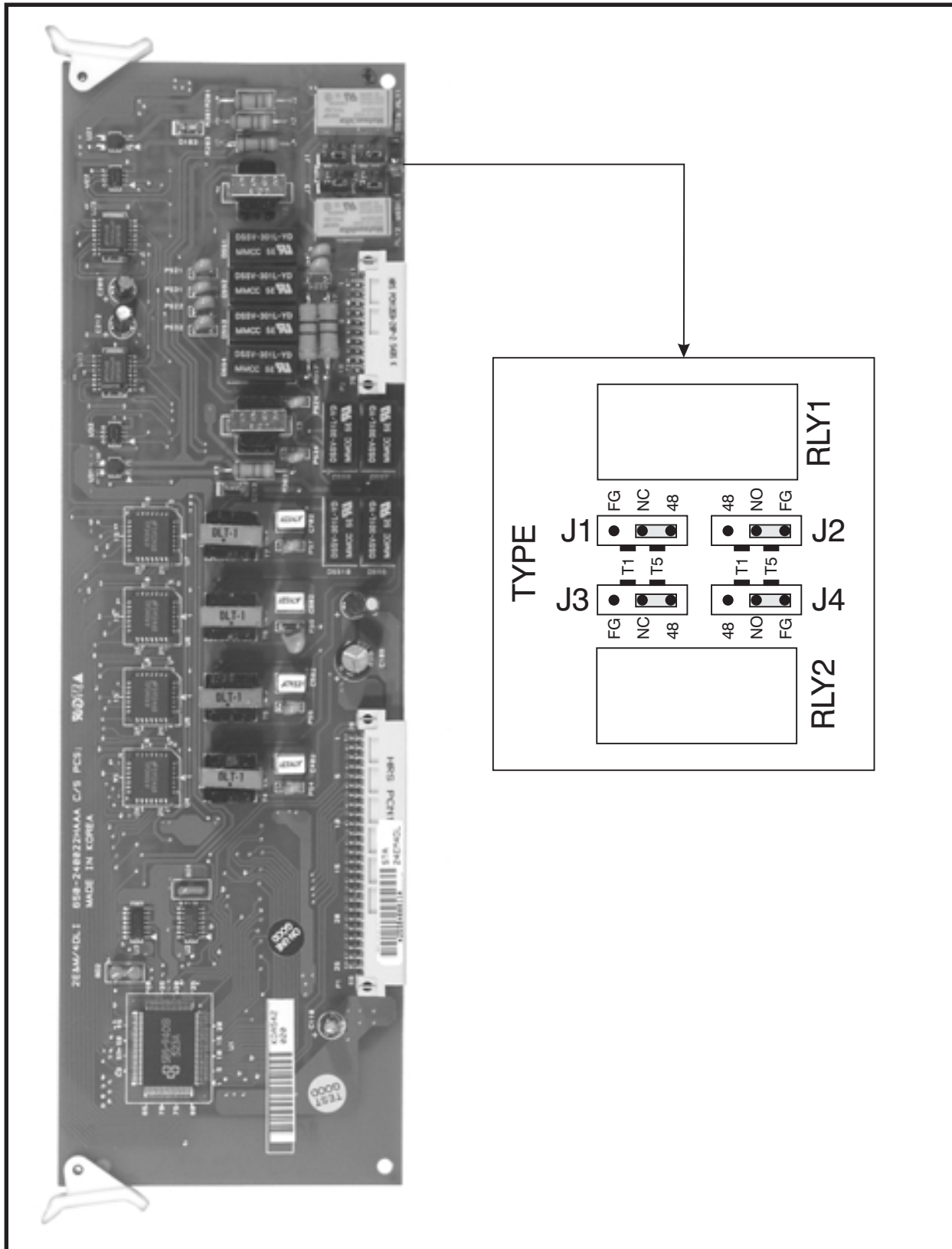
2 X 4 SLI CARD AND S8SLI CARD

FIGURE 3-7



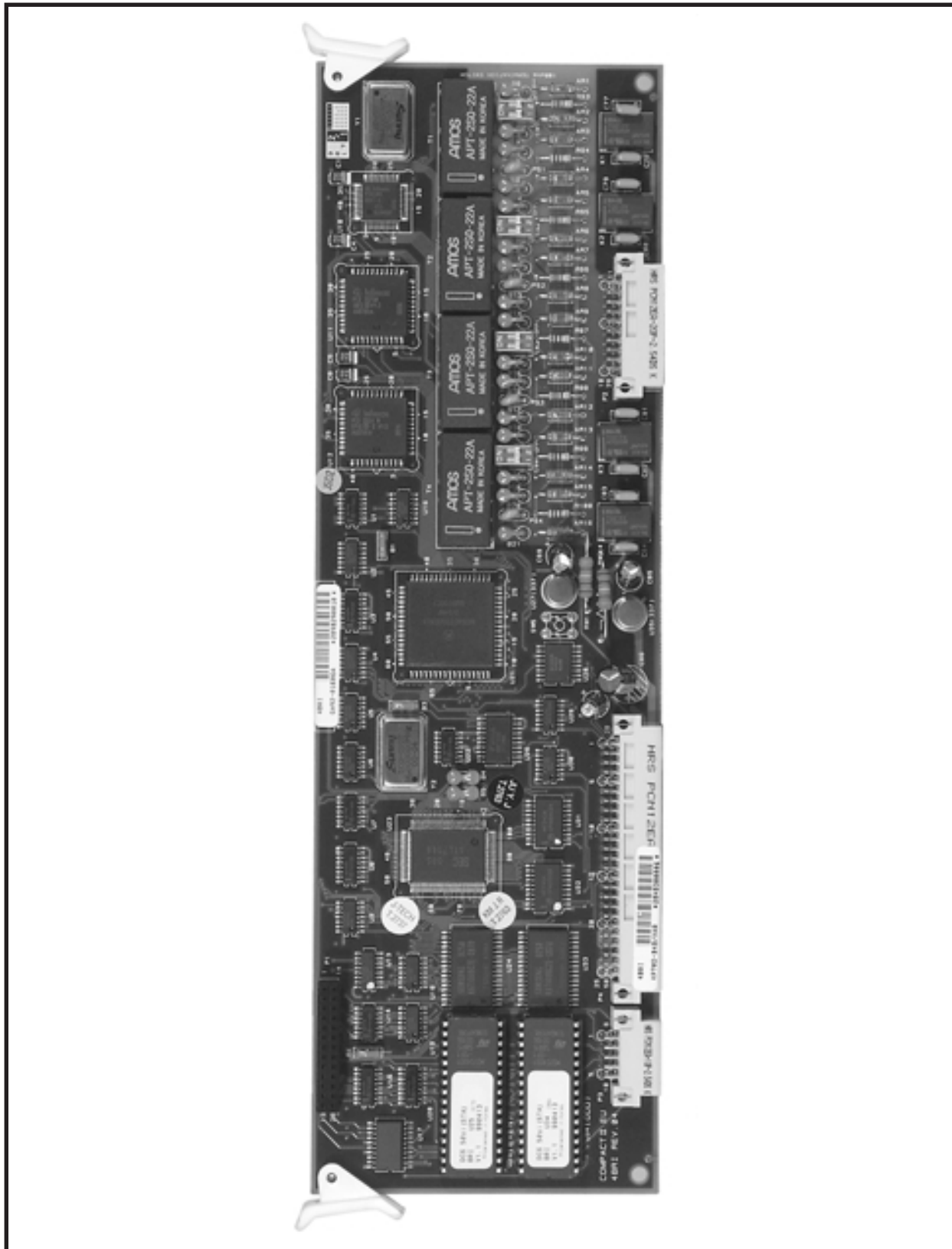
S3TRK CARD AND S6TRK CARD

FIGURE 3-8



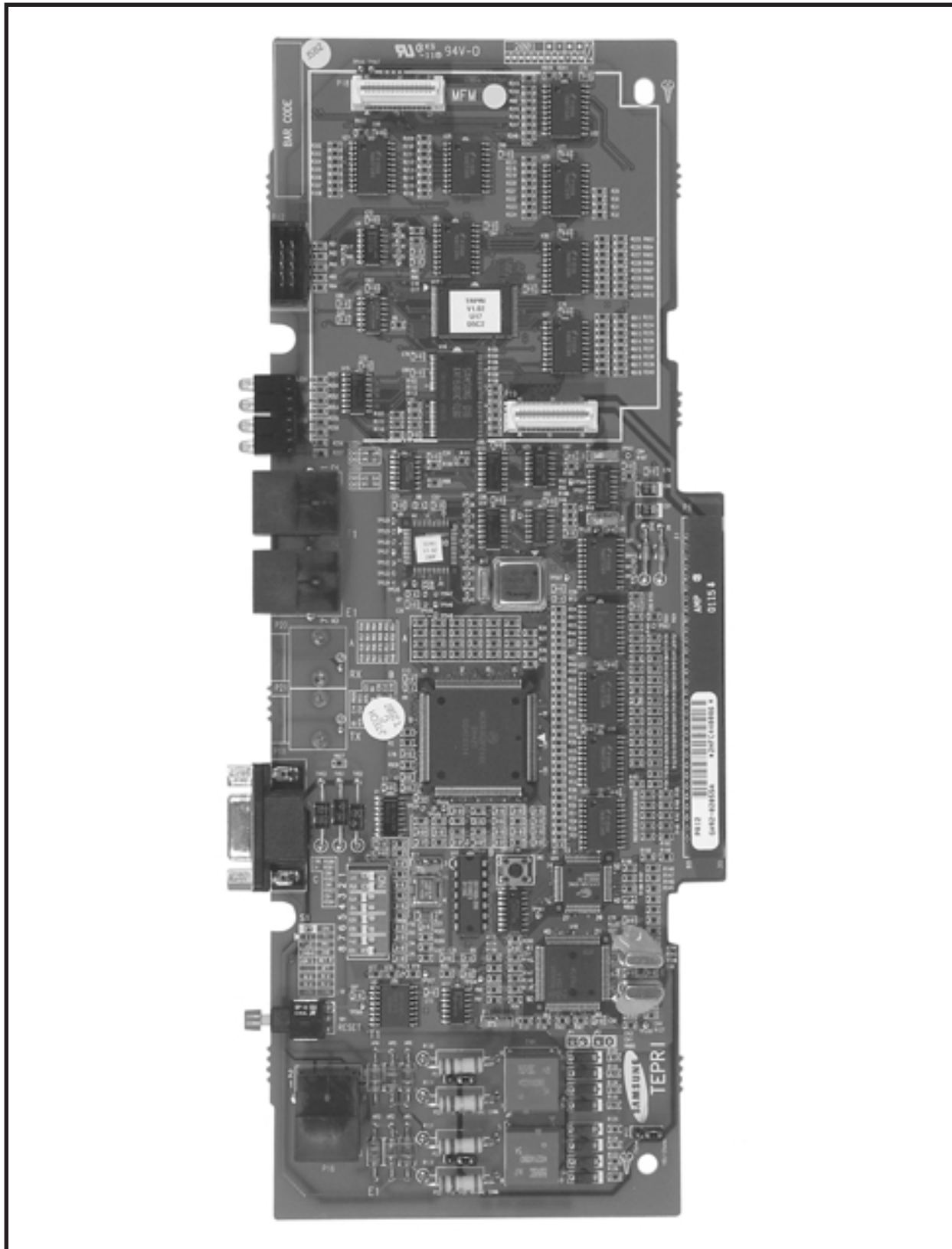
2 E&M / 4 DLI CARD

FIGURE 3-9



S4BRI CARD

FIGURE 3-10

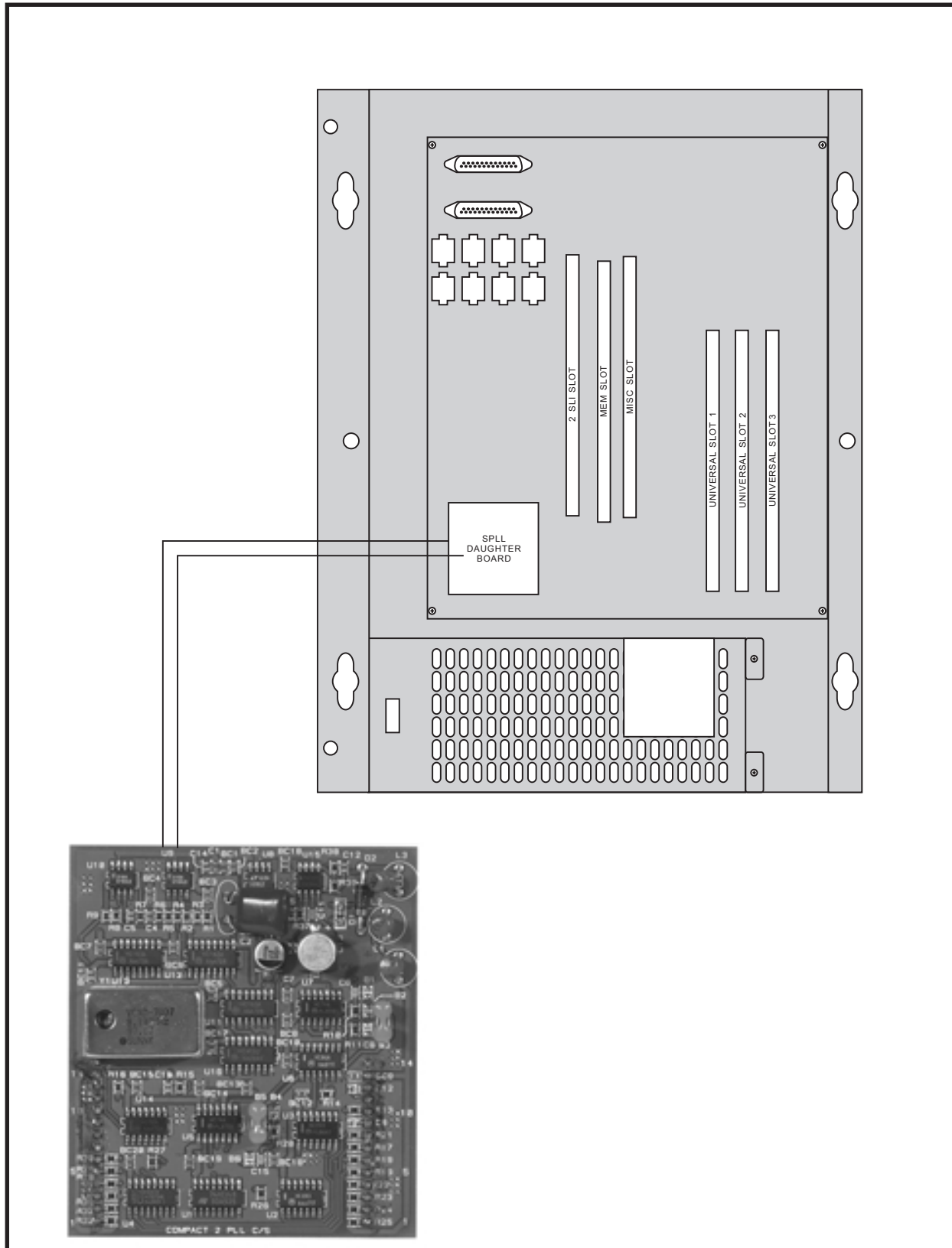


iDCS TEPRI CARD

FIGURE 3-11

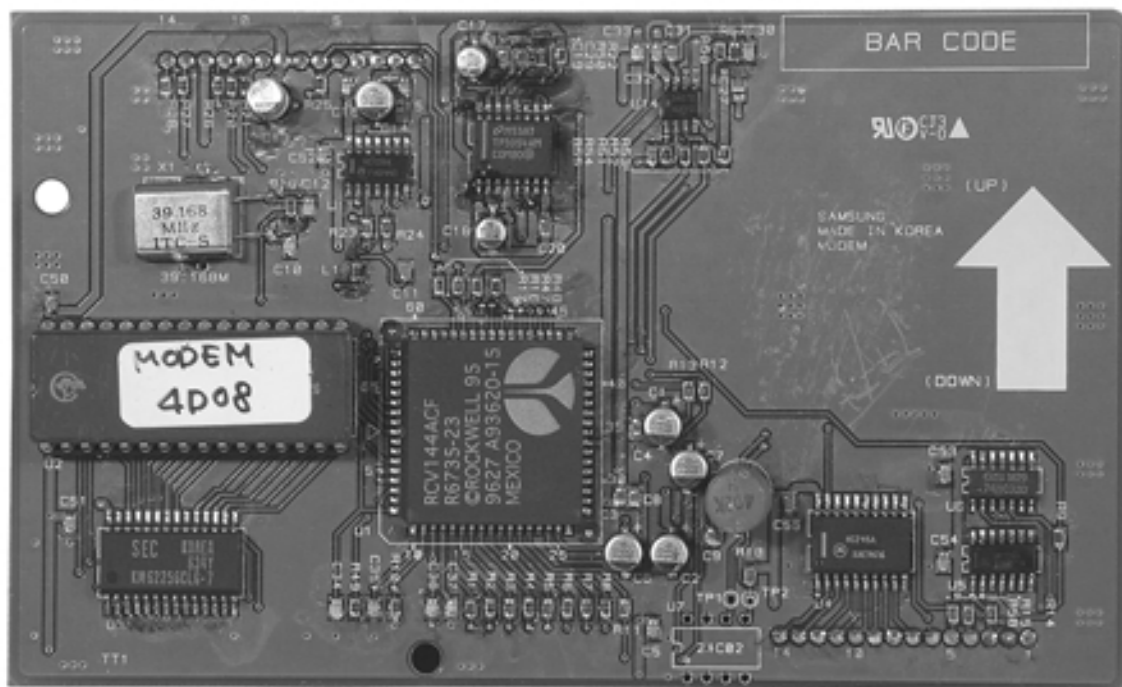


FIGURE 3-12



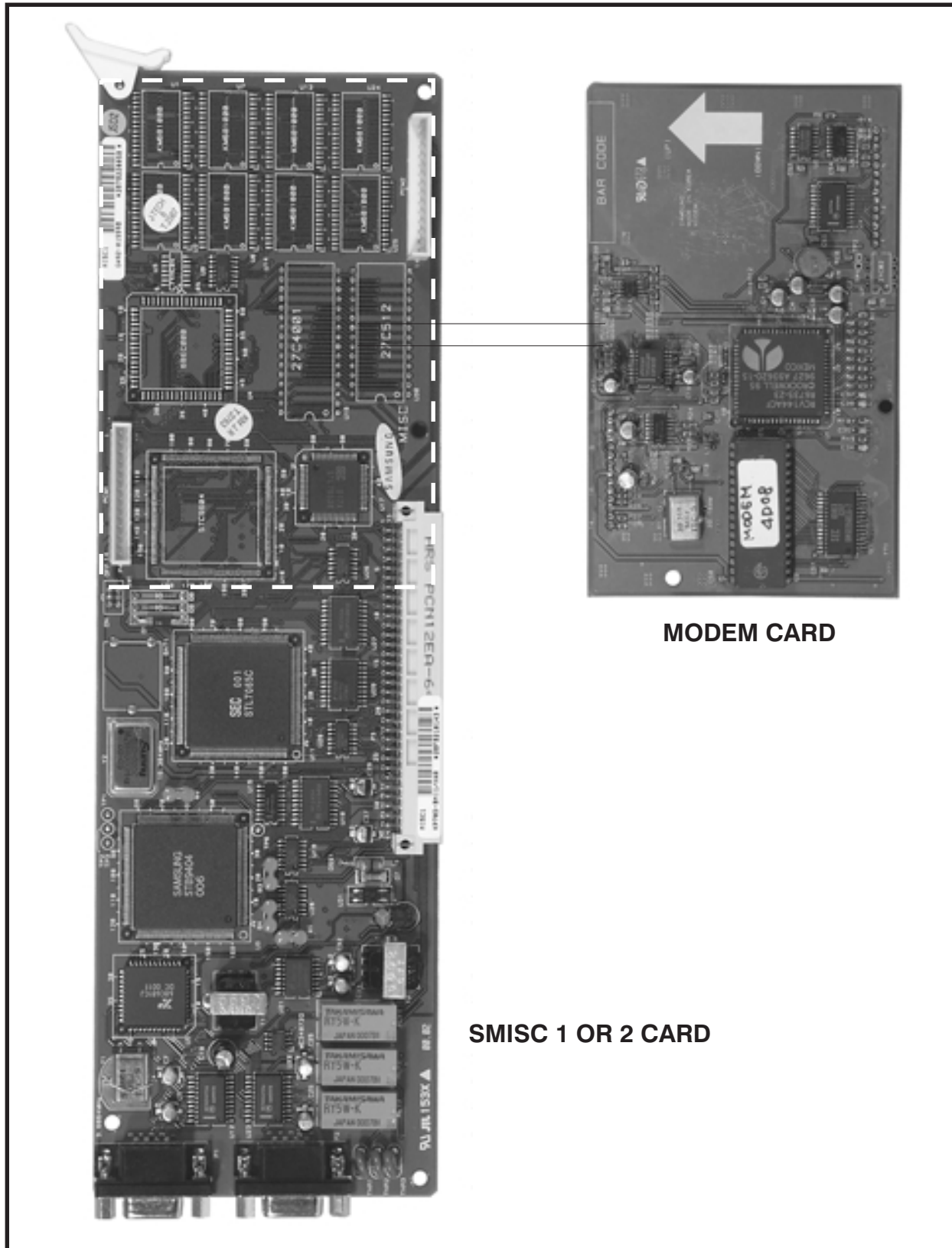
SPLL INSTALLATION ON
KSU MOTHERBOARD

FIGURE 3-13



MODEM CARD

FIGURE 3-14



MODEM CARD

SMISC 1 OR 2 CARD

MODEM CARD INSTALLATION ON
SMISC CARD

FIGURE 3-15



ITMC CARD

FIGURE 3-16

PART 4. POWER UP PROCEDURES

4.1 CONNECT POWER TO THE SYSTEM

Verify that the AC voltage at the dedicated electrical outlet is in the range of 82–132 Volts AC. Make sure the AC power switch on the system power supply is in the OFF position and that the SMEM card battery switch is also in the OFF position. Plug the KSU power cord into the dedicated polarized AC outlet. Turn the AC power switch to the ON position. The LED's on the power supply will light steady to confirm the presence of power. If both PSU LEDs fail to illuminate, unplug the system, remove the power supply cover and check the AC fuses located on the left-hand side of the face of the PSU.

If the AC fuses are good but the AC LED does not illuminate, unplug the KSU and change power supplies. This in all probability will solve the problem. If it does not, contact Samsung Technical Support.

If the AC LED is illuminated but the DC LED is out you must correct the problem before continuing. Turn off the power switch and check the DC fuses located in the opening of the face of the PSU. If the DC fuses are good but the DC LED does not illuminate, unplug the PSU from the motherboard. Turn the system on. Check the LEDs again. If the problem is corrected, you have a defective KSU motherboard or card. Test and remove the faulty card before continuing. If this does not correct the problem, unplug the KSU and change power supplies. This in all probability will solve the problem. If it does not, contact Samsung Technical Support.

4.2 iDCS MEM3 CARD INDICATIONS

Having verified proper operation of the power supply, visually check the iDCS MEM3 card indications. The LED should flicker rapidly indicating the main processor is functioning. The battery switch should now be turned ON. If the LED remains lit steady turn power to the system OFF remove the iDCS MEM3 card and check the installation of the EPROM's by removing them and checking for bent or damaged pins. If the EPROMs appear to be installed correctly and the system does not come up when turned on, contact Samsung Technical Support.

The system is equipped with a halt program. When this program is running, the LED is ON steady. The system must be reset to release the halt program and restore the system to normal operation ([see MMC 810 for operation of the halt program](#)).

4.3 iDCS MEM4 CARD INDICATIONS

Having verified proper operation of the power supply, visually check the iDCS MEM4 card indications. The LED indications are as follow:

LED	Indication	OFF	ON
1	Indicates whether the status of LAN transmit chip (LST972, U13) is in normal or abnormal.	Abnormal status	Normal status
2	Indicates LAN link status	Link	No Link
3	Indicates whether there is LAN RX data or not	None	Exist

LED	Indication	Slow Flicker (500ms)	Fast Flicker (200 ms)
4	RUN LED for MCP(MP) Indicates the operation of MCP	Normal operation	Booting operation
5	RUN LED for LAN Indicates the operation of LAN	Normal operation	Booting operation

4.4 PCB VERIFICATION

Before connecting all MDF cabling, plug in a test cable to the first S8DLI port. Connect a display set and verify that it is working. Use maintenance programs [MMC 727](#) and [MMC 806](#) to verify the system version, software version and that all cards are recognized by the CPU. Remove the test cable and plug in all amphenol-type cables to the MDF. Proceed with the rest of the installation.

4.5 DEFAULT TRUNK AND STATION NUMBERING

Upon initial power up, the CPU reads each slot for the existence of a card and identifies the type of card. It stores this as the default configuration.

The system assigns trunk numbers beginning with 701 and continues to 703 if one S3TRK card has been installed or 706 if two S3TRK cards and so on.

Station numbers are assigned in the same manner. The lowest station is assigned station number 201 and continues to 208 for a basic KSU or to 216 for system with one S8DLI. Keypad daughter boards are assigned numbers beginning with 301 and continue to 308. Default data assigns the keypad in the lowest port to the operator group and all trunks ring that station until the default is changed.

Station and trunk numbers can be changed, rearranged and reassigned, as needed using [MMC 724](#).

PART 5. CONNECTING TELCO CIRCUITS

5.1 SAFETY PRECAUTIONS

To limit the risk of personal injury, always follow these precautions before connecting TELCO circuits:

- a. Never install telephone wiring during a lightning storm.
- b. Never install telephone jacks in a wet location unless the jack is specifically designed for wet locations.
- c. Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- d. Use caution when installing or modifying telephone lines.
- h. Do not use this product near water, for example, near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement, or near a swimming pool.
- i. Do not use the telephone to report a gas leak in the vicinity of the leak.
- j. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.

5.2 LOOP START LINES

Using one pair twisted #24 AWG or #26 AWG jumper wire, cross-connect each loop start C.O. line to the trunk port of your choice ([see Figures 5-1, 5-2, 5-3](#)).

5.3 OFF PREMISE EXTENSIONS (OPX)

Using one pair twisted #24 AWG or #26 AWG jumper wire, cross-connect any 2 SLI port to telephone company OPX circuits ([see Figure 5-4](#)).

Circuits on the 2 SLI card are specifically designed to meet TELCO requirements for OPX use. These circuits are provided with the same over voltage and over current protection as C.O. line circuits. Using single line stations on a 2 X 4 SLI, S8SLI or KDb SLI may cause damage to your equipment.

There is no special programming required for OPX use; however, it is suggested that the OPX ports be set programmed as “data ring” in [MMC 208](#) to provide a disconnect signal to the OPX equipment. The telephone company service facility interface code for this type of OPX circuit is OL13C.

5.4 E&M TIE LINES

Using two pair twisted #24 AWG or #26 AWG jumper wire, cross-connect any E&M port to a telephone company E&M circuit ([see Figure 5-5](#)). The telephone company

service facility interface code for the E&M tie line is TL11M. This is a 2 wire Type 1 tie line.

NOTE: When connecting an E&M tie line in “back to back” fashion you must remember to reverse the E&M leads at one end ONLY i.e. connect the E lead on one system to the M lead of the other system and vice versa.

5.5 ISDN BRI LINES

The iDCS 100 requires that an NT1 be connected between the iDCS 100 and the BRI circuit provided by the Telephone Company. This is necessary to convert the circuit from the U type 2 wire interface provided by the Telephone Company to an S/T type 4 wire interface used by the iDCS 100.

Using two pair twisted #24 AWG or #26 AWG jumper wires cross-connect any S4BRI port to the output or CPE side of the NT1 ([see Figure 5–6](#)).

For information regarding the ordering and programming of a BRI circuit please see the Special Applications part of the Programming section of this manual.

5.6 T1 or PRI CIRCUIT

Using a standard, straight through eight conductor data cable or straight through eight conductor line cord to connect the customer provided Channel Service Unit (CSU) to the TEPRI card as shown in [Figure 5–7](#).

NOTES:

1. It may be necessary to cut off the CSU end of the cable and attach a different connector to match that of the CSU. If possible, this connection should be soldered because good connections are critical.
2. It is recommended that the CSU be connected to the network interface with a cable supplied by the CSU manufacturer. If this is not possible or practical, a custom cable has to be made up. This cable should be made from 22 gauge two pair cable with each pair individually shielded. It is recommended that the connections on this cable be soldered wherever possible to ensure good connections. The shielding of the cable should be connected to ground at the CSU end only to prevent a ground loop.
3. [See section 3.14 to ensure dip switch settings on the card are correct.](#)

ORDERING A T1

The following information may be useful when ordering T1 service from the telephone company.

PARAMETER

OPTIONS IN iDCS 100

Framing type

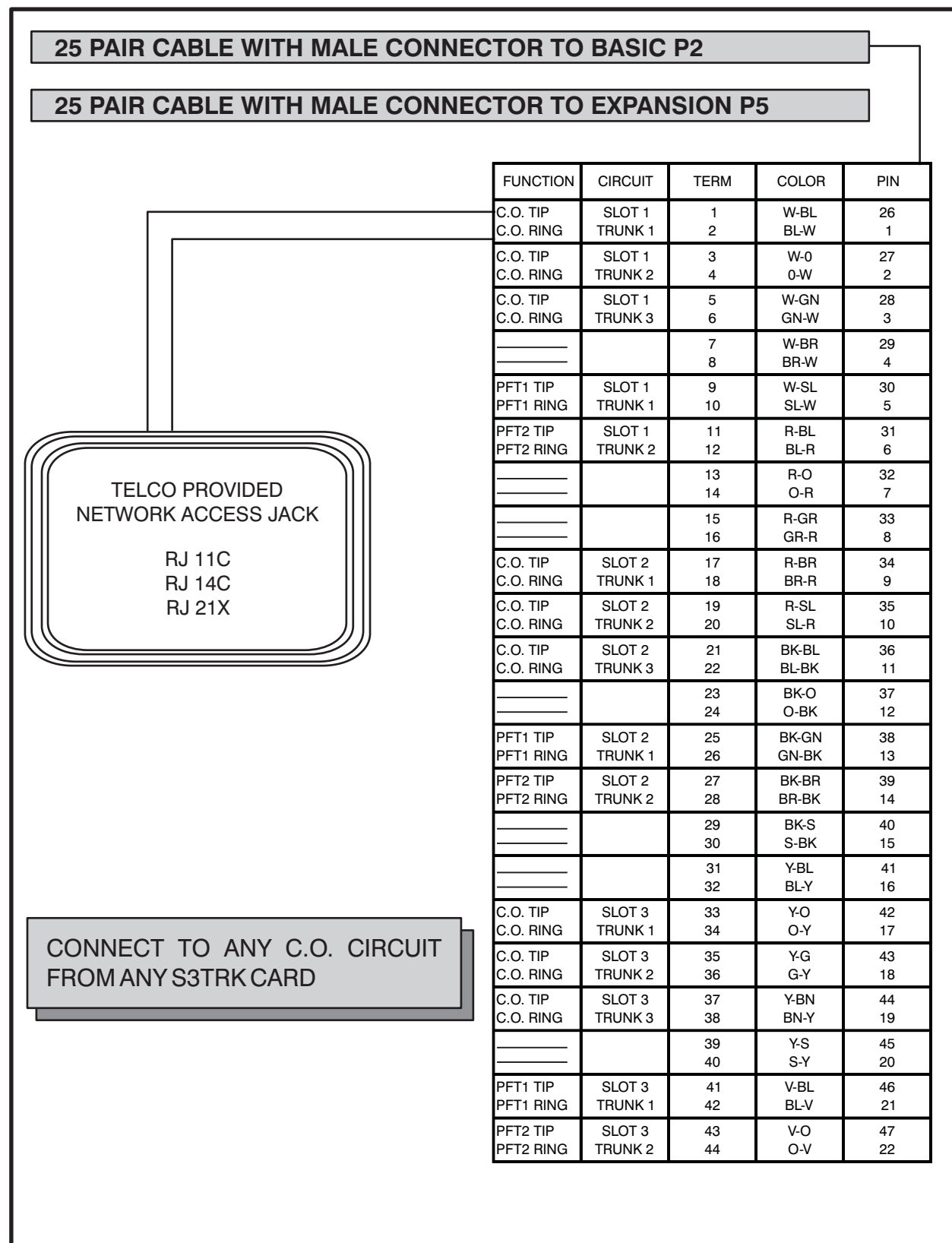
Super Frame (SF) or D4

Extended Super Frame (ESF)

Coding type

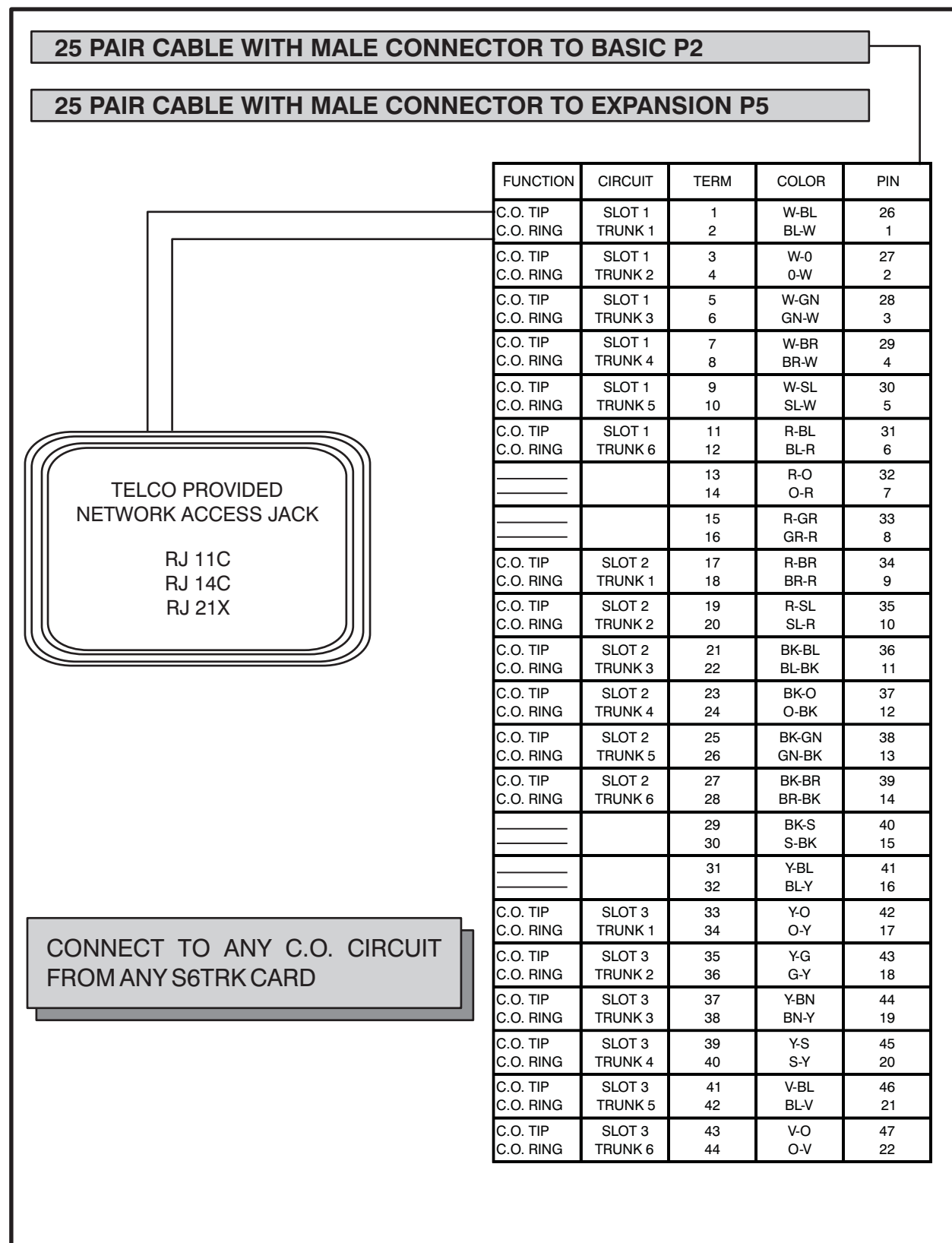
AMI or B8ZS

The coding type must be set up in the system to match the T1 span and is contained in [MMC 808](#).



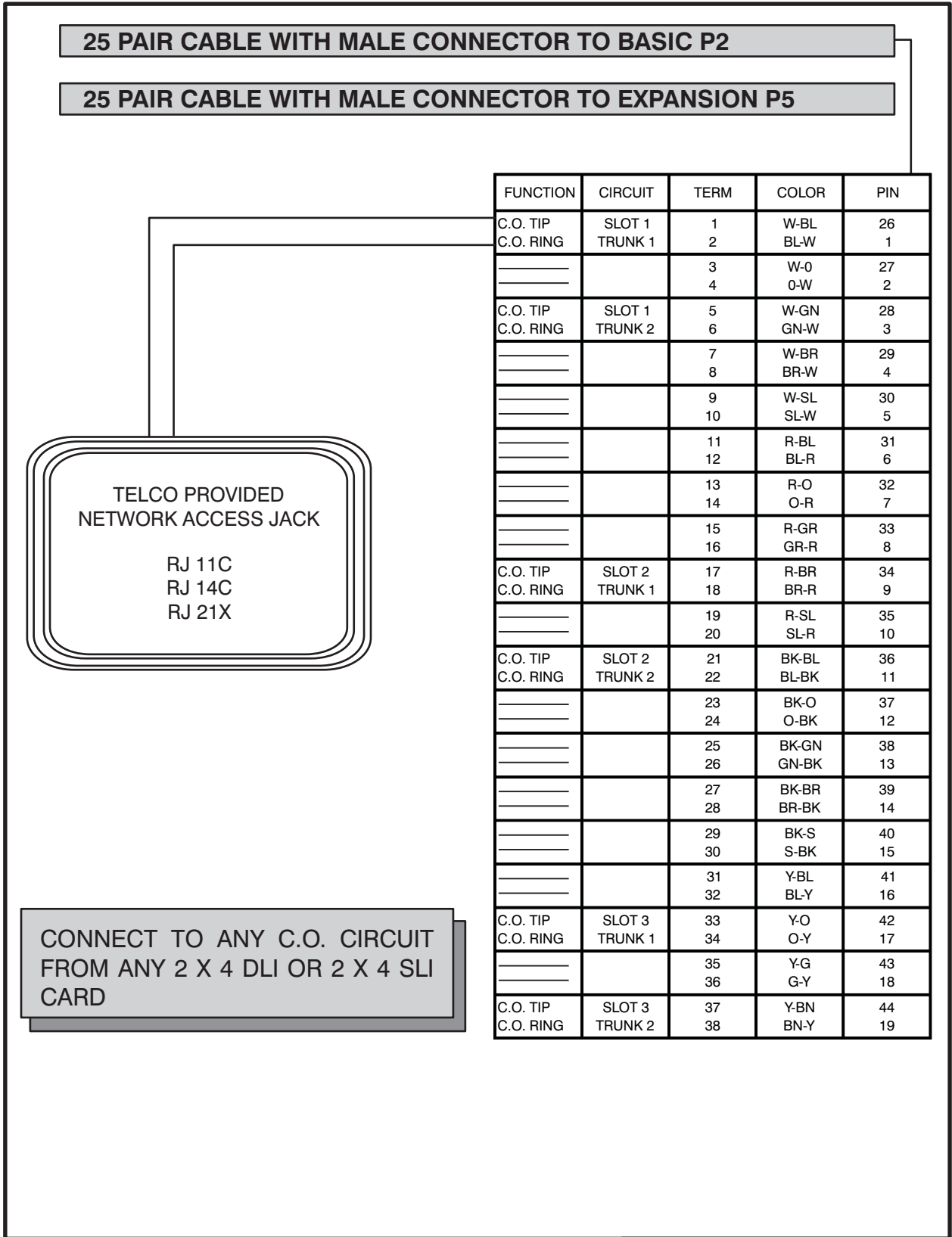
MDF CONNECTIONS
LOOP START LINE TO S3TRK CARD

FIGURE 5-1



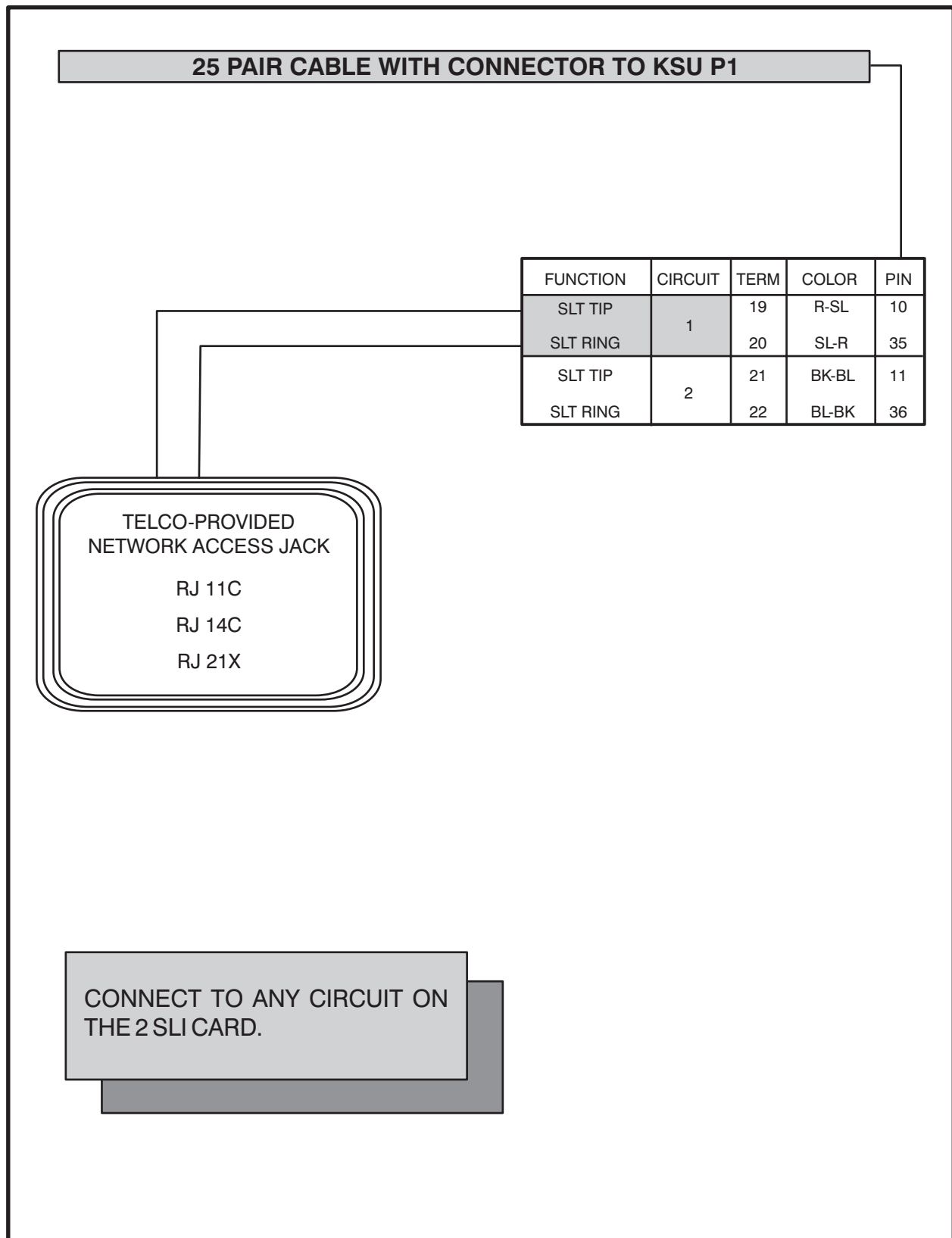
MDF CONNECTIONS
LOOP START LINE TO S6TRK CARD

FIGURE 5-2



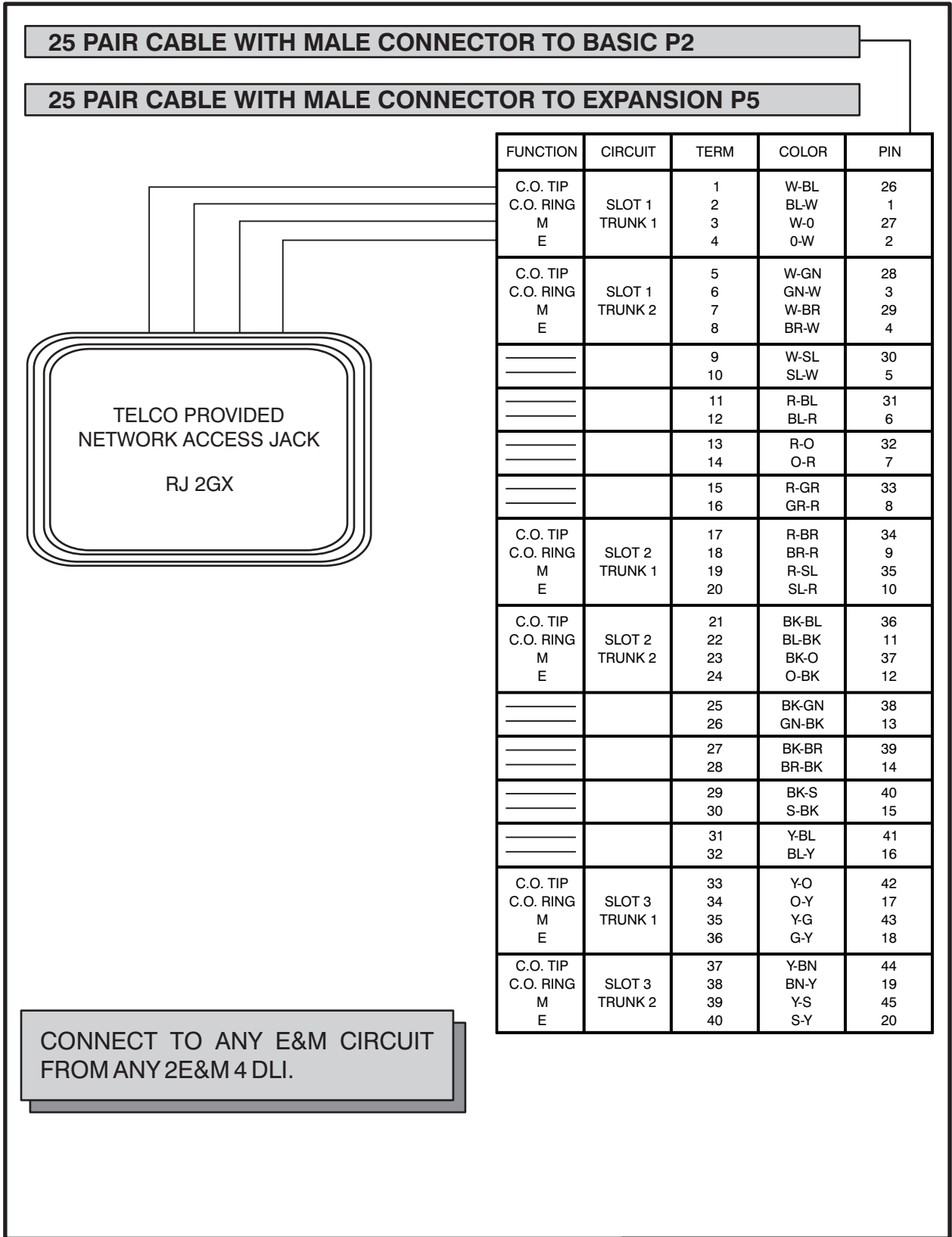
MDF CONNECTIONS
LOOP START LINE TO 2 x 4 CARD

FIGURE 5-3



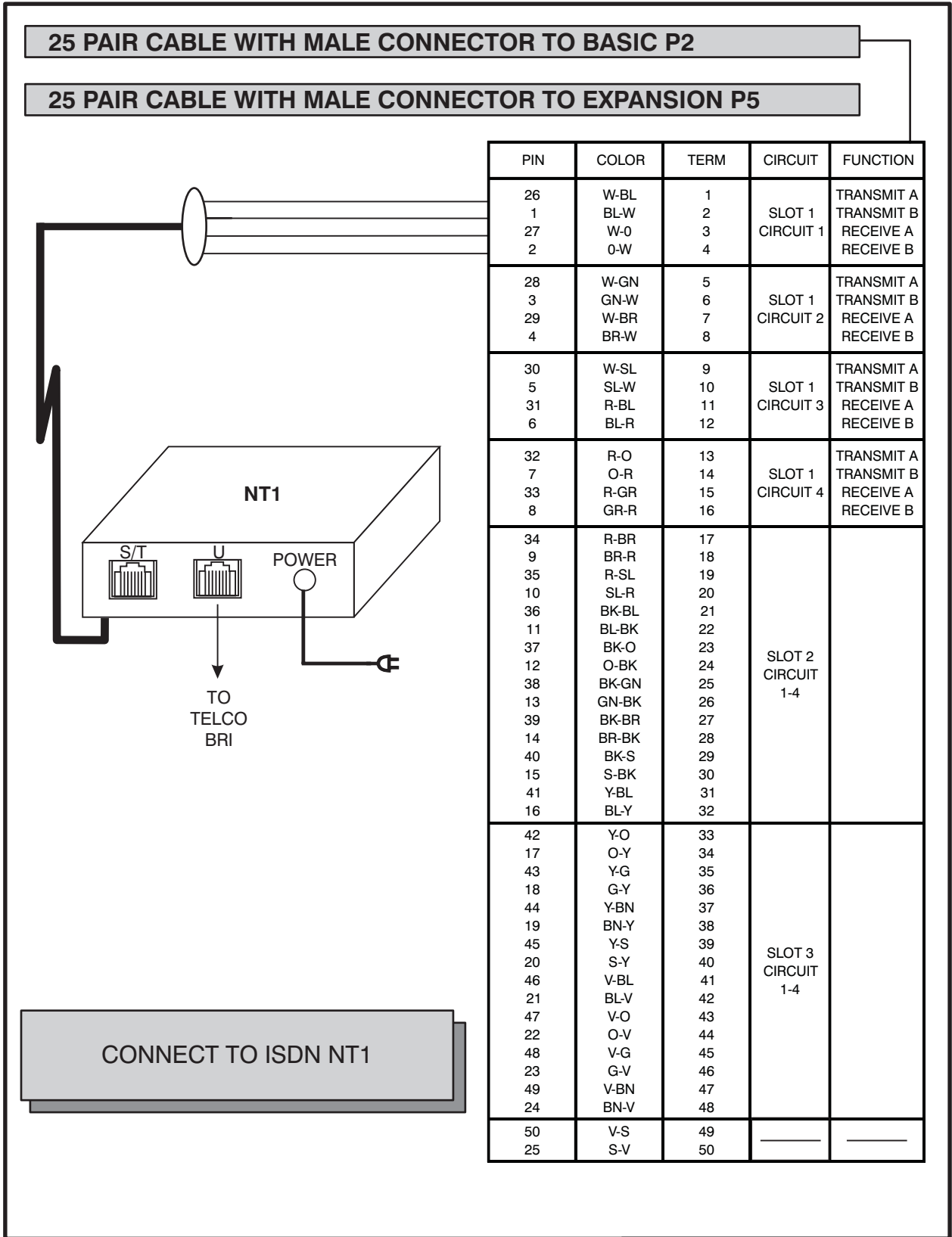
MDF CONNECTIONS
OFF PREMISE EXTENSION FROM
2 SLI CARD

FIGURE 5-4



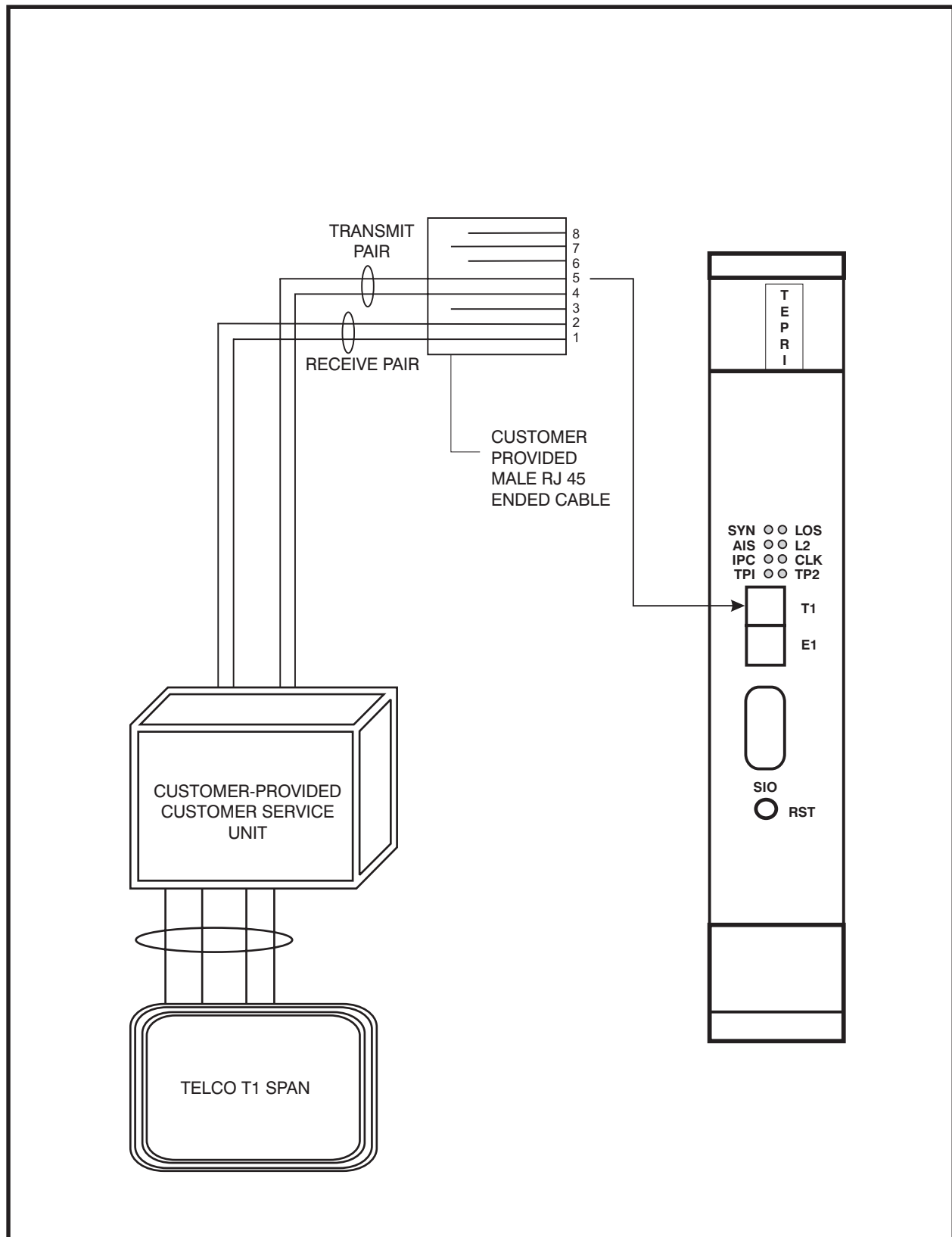
MDF CONNECTIONS
E&M LINE TO 2EXM 4 DLI CARD

FIGURE 5-5



MDF CONNECTIONS
FOR ISDN NT1 TO S4BRI CARD

FIGURE 5-6



MDF CONNECTIONS
T1/PRI CIRCUIT TO TEPRI CARD

FIGURE 5-7

PART 6. CONNECTING STATION EQUIPMENT

6.1 SAFETY PRECAUTIONS

To limit the risk of personal injury, always follow these precautions before connecting telephone circuits:

- a. Never install telephone wiring during a lightning storm.
- b. Never install telephone jacks in a wet location unless the jack is specifically designed for wet locations.
- c. Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- d. Use caution when installing or modifying telephone lines.

6.2 KEYSETS

Using one pair twisted #24 AWG or #26 AWG jumper wire, cross-connect each keyset to the DLI port of your choice ([see Figures 6-1, 6-2, and 6-3](#)).

NOTE: Because the iDCS 100 is a self-configuring system, if you connect a 12 button keyset to a DLI port that previously had a 24 button keyset installed, the existing data will be rewritten with 12 button keyset default data ([see MMC 723](#)).

6.3 DCS 32 BUTTON ADD-ON MODULE

Using one pair twisted #24 AWG or #26 AWG jumper wire, cross-connect each add-on module (AOM) to the DLI port of your choice ([see Figures 6-4, 6-5, and 6-6](#)).

If an AOM is to operate as a stand-alone unit, there is nothing else required other than assigning keys. When an AOM is to be used with a station, it must be assigned in [MMC 209](#). Add-on modules can be assigned to any keyset.

6.4 SINGLE LINE TELEPHONE

Using one pair twisted #24 AWG or #26 AWG jumper wire, cross-connect each single line telephone to the SLI port of your choice ([see Figures 6-7, 6-8, and 6-9](#)).

6.5 DOOR PHONE AND DOOR LOCK RELEASE

Using one pair twisted #24 AWG or #26 AWG jumper wire, cross-connect each DPIM to the DLI port of your choice ([see Figures 6-10, 6-11, and 6-12](#)). Next, connect the DPIM to the door phone using #24 AWG or #26 AWG twisted pair wire.

When a customer-provided electric door release is installed, cross-connect the corresponding door release contacts on the DPIM to the door lock mechanism ([see Figures 6-10, 6-11 and 6-12](#)). Use [MMC 501](#) to program the duration of the contact closure as required. [See the user guides for door lock release operation](#). The door release contacts on the DPIM are to be used for low voltage relay control only. The contacts are rated at 24 VDC-1 amp.

WARNING: Do not attempt to connect commercial AC power to these contacts.

6.6 ISDN BRI STATIONS

The iDCS 100 uses an S/T type interface so if the BRI station equipment requires a U type circuit then an NT1 must be connected between the iDCS 100 and the station equipment. This will convert the circuit from the S/T type 4 wire interface provided by the iDCS 100 to the U type 2 wire interface required by the station equipment. In this case the maximum distance of the BRI station equipment from the iDCS 100 is determined by the specifications of the NT1.

Using two pair twisted #24 AWG or #26 AWG jumper wire cross-connect any BRI port to the BRI station equipment (or NT1), ([see Figure 6-13](#)).

[For information regarding the programming of a BRI circuit please see the Special Applications part of the Programming section of this manual.](#)

6.7A WALL-MOUNTING KEYSETS

DCS keysets come equipped with a reversible base wedge. To wall-mount a keyset, remove the wedge from the keyset and remove the directory tray from the wedge. Mount the wedge to the wall using one of the methods below ([see Figure 6-14](#)).

Use screw holes 1 and 2 to attach the base wedge to a standard electrical outlet box.

OR

Use screw holes 1 and 3 to attach to a standard telephone wall-mount plate with locking pins. This method can cause the keyset to wobble as the keyset feet do not fit securely to the mounting surface.

OR

Use screw holes 4 and 5 if you are mounting on dry wall with a hole in the middle for cable access.

6.7B WALL-MOUNTING KEYSETS WITH ULTRA BASE WEDGE

DCS keysets now come equipped with a new Ultra Base wedge. These base wedges are reversible and can be used for wall-mounting however not every wall mounting scenario is appropriate. First and foremost there is only one keyhole in the center of the base attaching to the wall, and these base wedges can not be used with the standard wall mount bracket with the two button/pins. To wall-mount the keyset using Ultra Base wedges use screw holes 1, 2 and 3 to mount the base wedge on dry wall with the hole in the middle for cable access ([see Figure 6-15](#)).

6.7C WALL-MOUNTING iDCS KEYSETS

The iDCS keysets come equipped with a reversible base wedge. To wall-mount a keyset, remove the wedge from the keyset and mount the wedge to the wall using one of the methods below ([see Figure 6-16](#)).

Use screw holes 1 and 2 to attach the base wedge to a standard electrical outlet box.

OR

Use screw holes 1 and 3 to attach to a standard telephone wall-mount plate with locking pins. This method can cause the keyset to wobble as the keyset feet do not fit securely to the mounting surface.

6.8 64 BUTTON MODULES

Using one pair twisted #24 AWG or #26 AWG jumper wire, cross-connect each 64 button module (64 BM) to the DLI port or plug into the DLI daughter board or your choice ([see part 8 of the installation section](#)). The 64 BM module can be assigned to any keyset telephone. It must be assigned to that station in [MMC 309](#). A maximum of four (4) 64 button modules can be programmed in the iDCS 100 system. A maximum of two (2) 64 button modules per keyset.

6.9 ATTACHING DCS 32 BUTTON AOM AND DCS 64 BUTTON MODULES TO MASTER STATION

These new Ultra Base Wedges allow a connector clip (packaged with 64B Modules and AOMs) to be connected to the underside of the new style wedge and attach AOM(s) or 64B module(s) together with the main or “master” station. This “clip” allows multiple 64B modules and or AOMs to be secured or “chained” together to the main or “master” station they are associated with. This will make instruments associated with each other seem as one unit ([see Figure 6-17, 6-18 and 6-19](#)).

6.10 ATTACHING iDCS 64B MODULES TO AN iDCS KEYSET

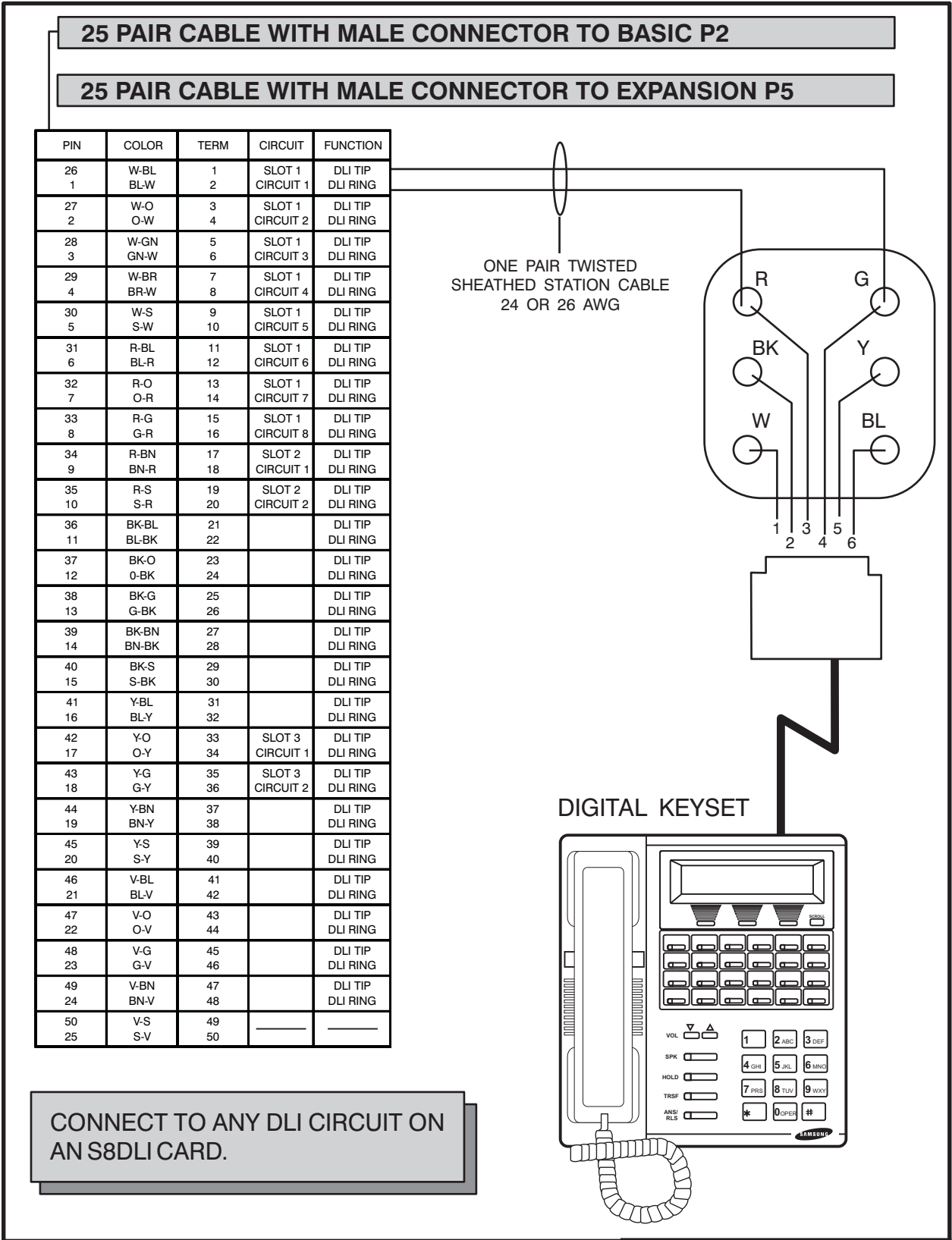
First remove the base wedge from the iDCS 64B Module and attach the bracket to it with two of the screws provided ([see Figure 6-20](#)).

Remove the base wedge of the keyset and place it to the right of the 64 Button Module and attach the bracket/64BM to the keyset with the remaining two screws.

The base wedge can now be replaced.

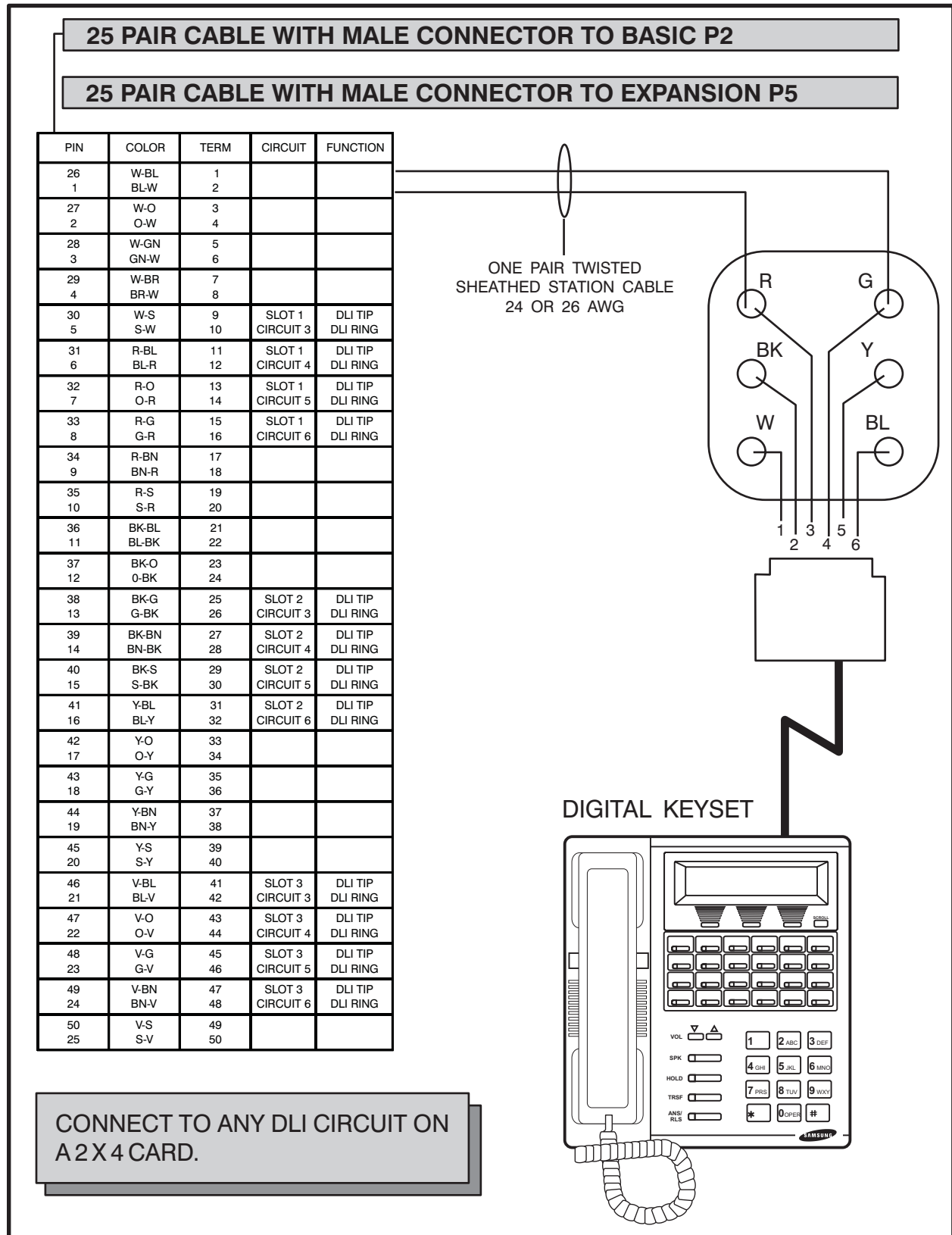
NOTE: If you wish to attach two 64 button modules to a keyset, connect the 64 button modules together first and then attach them to the keyset.





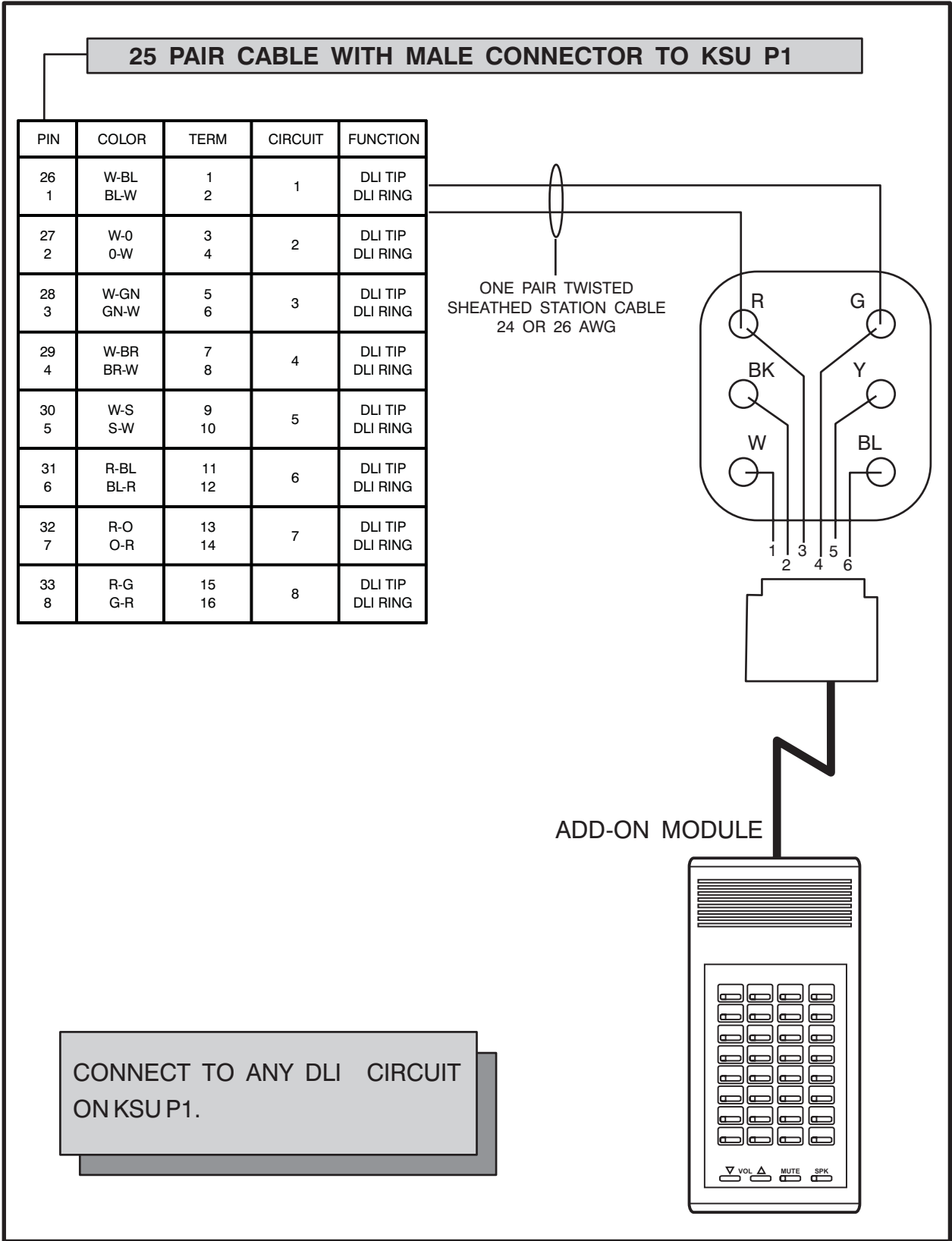
MDF CONNECTIONS
DIGITAL KEYSET TO S8DLI CARD

FIGURE 6-2



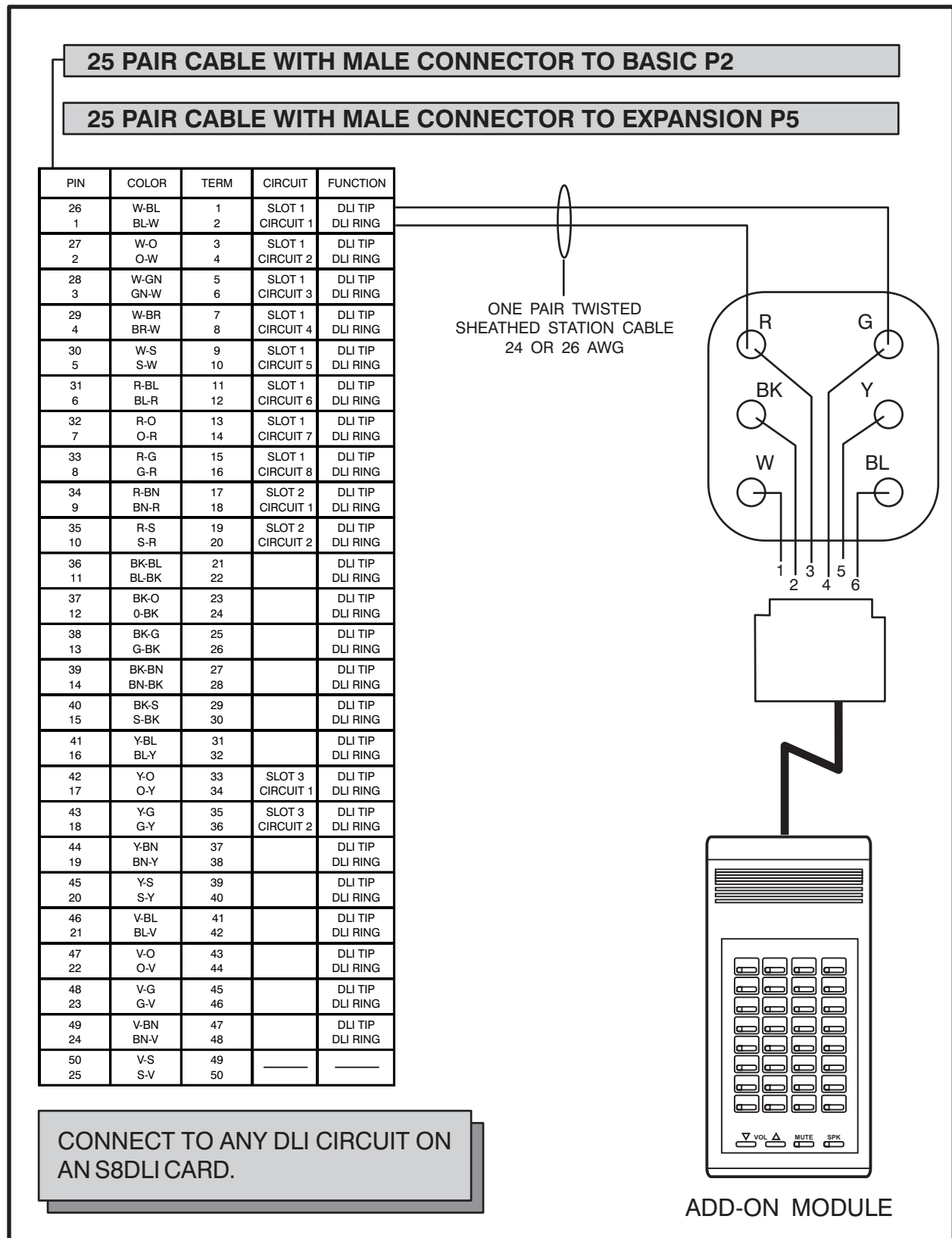
MDF CONNECTIONS
DIGITAL KEYSET TO 2 X 4 CARD

FIGURE 6-3



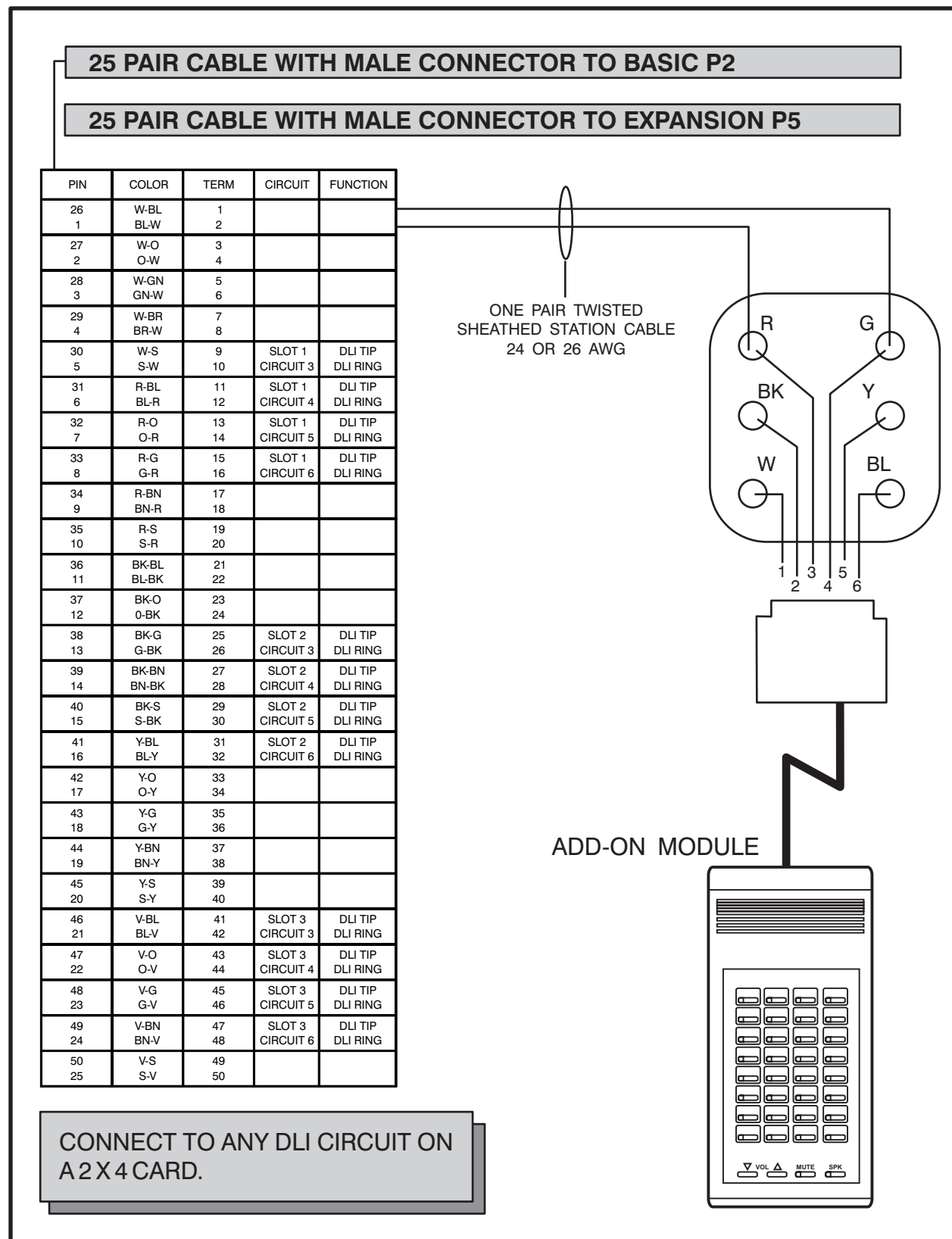
MDF CONNECTIONS
AOM TO KSU P1

FIGURE 6-4



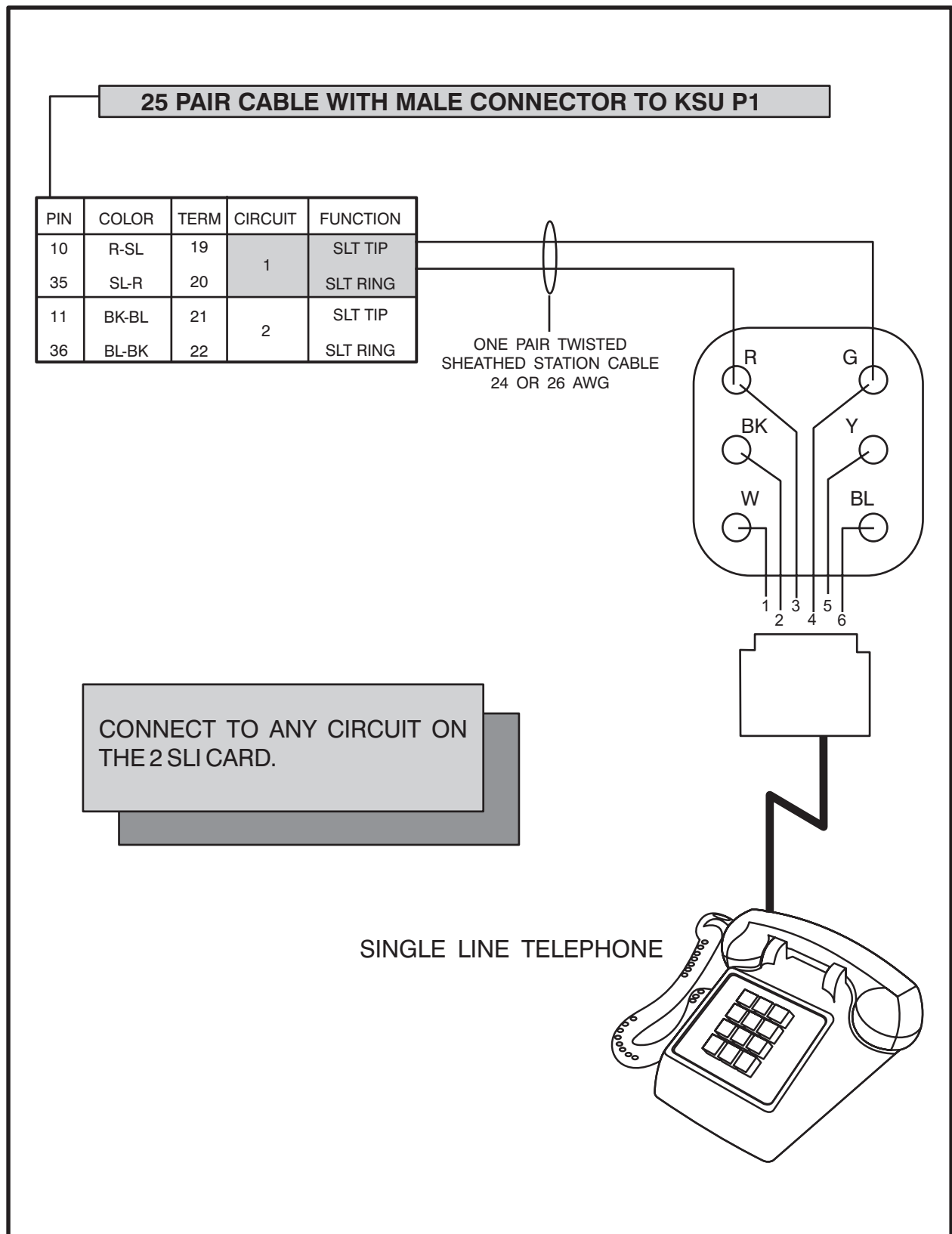
MDF CONNECTIONS
AOM TO S8DLI CARD

FIGURE 6-5



MDF CONNECTIONS
AOM TO 2 X 4 CARD

FIGURE 6-6



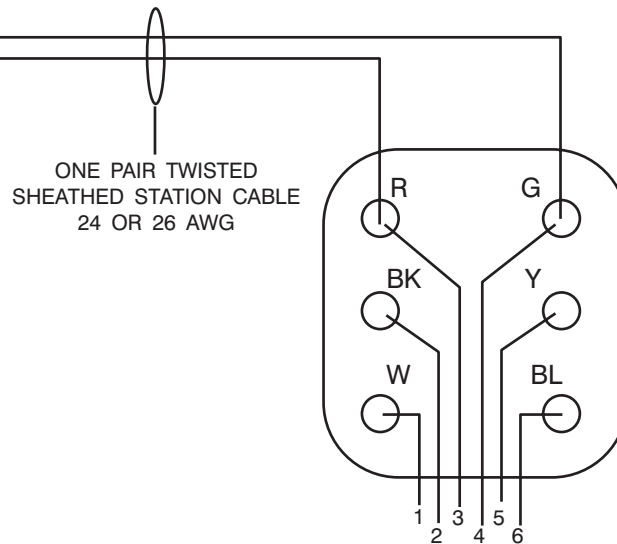
MDF CONNECTIONS
SINGLE LINE TELEPHONE
TO 2 SLI CARD

FIGURE 6-7

25 PAIR CABLE WITH MALE CONNECTOR TO BASIC P2

25 PAIR CABLE WITH MALE CONNECTOR TO EXPANSION P5

PIN	COLOR	TERM	CIRCUIT	FUNCTION
26	W-BL	1	SLOT 1	SLI TIP
1	BL-W	2	CIRCUIT 1	SLI RING
27	W-O	3	SLOT 1	SLI TIP
2	O-W	4	CIRCUIT 2	SLI RING
28	W-GN	5	SLOT 1	SLI TIP
3	GN-W	6	CIRCUIT 3	SLI RING
29	W-BR	7	SLOT 1	SLI TIP
4	BR-W	8	CIRCUIT 4	SLI RING
30	W-S	9	SLOT 1	SLI TIP
5	S-W	10	CIRCUIT 5	SLI RING
31	R-BL	11	SLOT 1	SLI TIP
6	BL-R	12	CIRCUIT 6	SLI RING
32	R-O	13	SLOT 1	SLI TIP
7	O-R	14	CIRCUIT 7	SLI RING
33	R-G	15	SLOT 1	SLI TIP
8	G-R	16	CIRCUIT 8	SLI RING
34	R-BN	17	SLOT 2	SLI TIP
9	BN-R	18	CIRCUIT 1	SLI RING
35	R-S	19	SLOT 2	SLI TIP
10	S-R	20	CIRCUIT 2	SLI RING
36	BK-BL	21		SLI TIP
11	BL-BK	22		SLI RING
37	BK-O	23		SLI TIP
12	O-BK	24		SLI RING
38	BK-G	25		SLI TIP
13	G-BK	26		SLI RING
39	BK-BN	27		SLI TIP
14	BN-BK	28		SLI RING
40	BK-S	29		SLI TIP
15	S-BK	30		SLI RING
41	Y-BL	31		SLI TIP
16	BL-Y	32		SLI RING
42	Y-O	33	SLOT 3	SLI TIP
17	O-Y	34	CIRCUIT 1	SLI RING
43	Y-G	35	SLOT 3	SLI TIP
18	G-Y	36	CIRCUIT 2	SLI RING
44	Y-BN	37		SLI TIP
19	BN-Y	38		SLI RING
45	Y-S	39		SLI TIP
20	S-Y	40		SLI RING
46	V-BL	41		SLI TIP
21	BL-V	42		SLI RING
47	V-O	43		SLI TIP
22	O-V	44		SLI RING
48	V-G	45		SLI TIP
23	G-V	46		SLI RING
49	V-BN	47		SLI TIP
24	BN-V	48		SLI RING
50	V-S	49		SLI TIP
25	S-V	50		SLI RING



SINGLE LINE
TELEPHONE



CONNECT TO ANY DLI CIRCUIT ON
AN 8SDLI CARD.

MDF CONNECTIONS
SLT TO S8SLI CARD

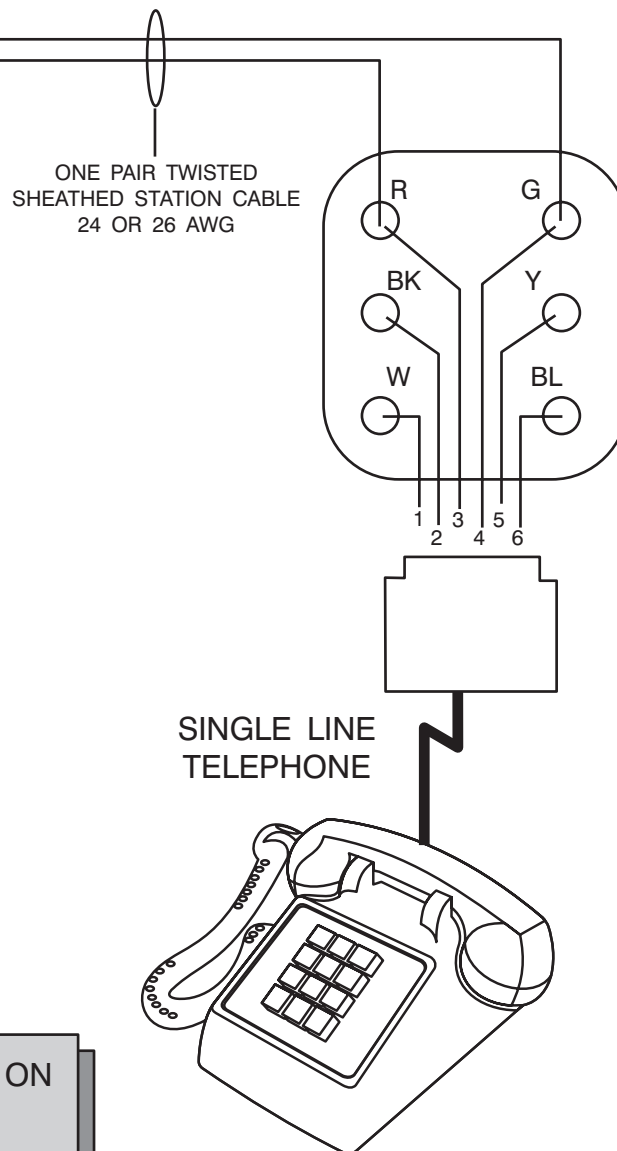
FIGURE 6-8

25 PAIR CABLE WITH MALE CONNECTOR TO BASIC P2

25 PAIR CABLE WITH MALE CONNECTOR TO EXPANSION P5

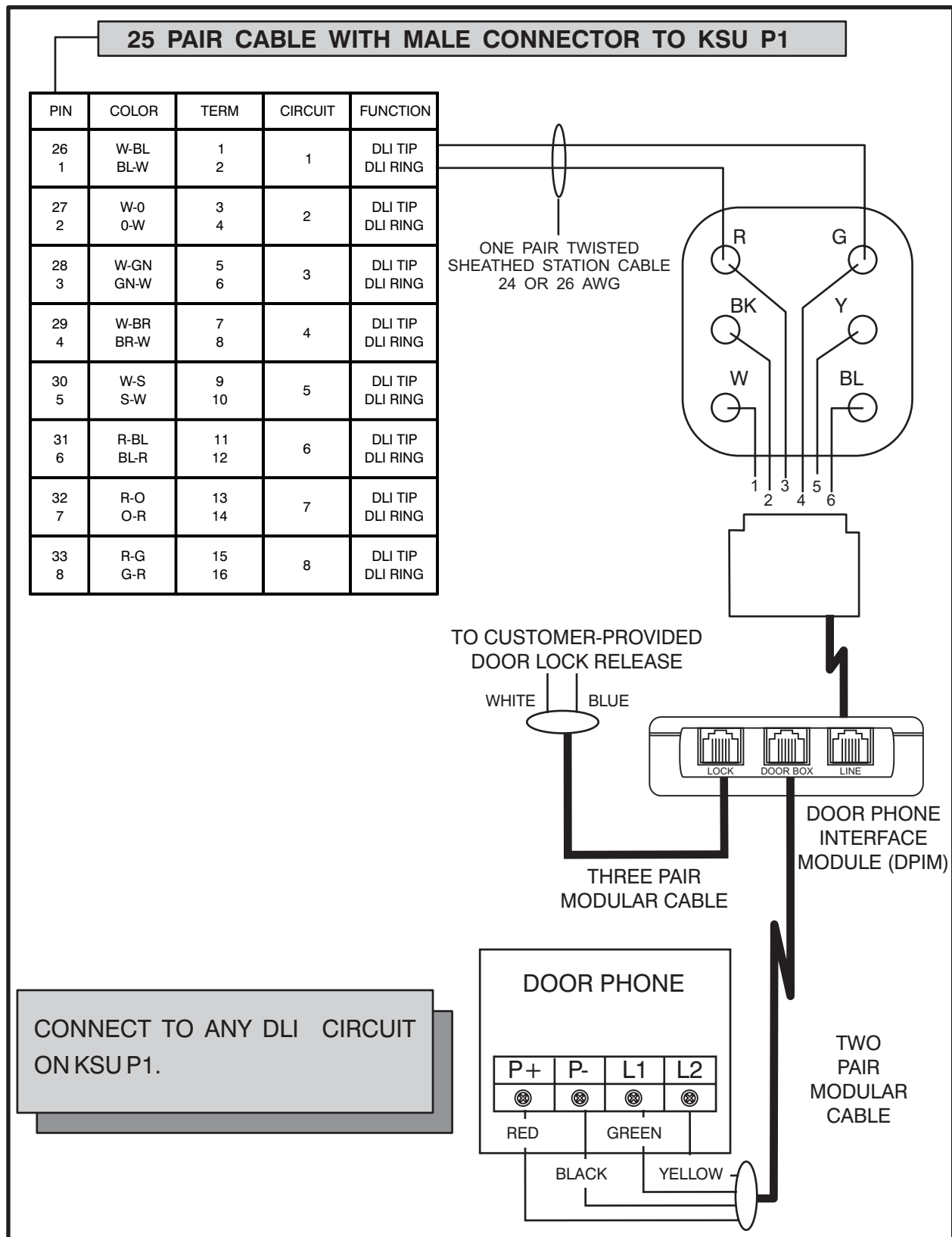
PIN	COLOR	TERM	CIRCUIT	FUNCTION
26	W-BL	1		
1	BL-W	2		
27	W-O	3		
2	O-W	4		
28	W-GN	5		
3	GN-W	6		
29	W-BR	7		
4	BR-W	8		
30	W-S	9	SLOT 1	SLI TIP
5	S-W	10	CIRCUIT 3	SLI RING
31	R-BL	11	SLOT 1	SLI TIP
6	BL-R	12	CIRCUIT 4	SLI RING
32	R-O	13	SLOT 1	SLI TIP
7	O-R	14	CIRCUIT 5	SLI RING
33	R-G	15	SLOT 1	SLI TIP
8	G-R	16	CIRCUIT 6	SLI RING
34	R-BN	17		
9	BN-R	18		
35	R-S	19		
10	S-R	20		
36	BK-BL	21		
11	BL-BK	22		
37	BK-O	23		
12	O-BK	24		
38	BK-G	25	SLOT 2	SLI TIP
13	G-BK	26	CIRCUIT 3	SLI RING
39	BK-BN	27	SLOT 2	SLI TIP
14	BN-BK	28	CIRCUIT 4	SLI RING
40	BK-S	29	SLOT 2	SLI TIP
15	S-BK	30	CIRCUIT 5	SLI RING
41	Y-BL	31	SLOT 2	SLI TIP
16	BL-Y	32	CIRCUIT 6	SLI RING
42	Y-O	33		
17	O-Y	34		
43	Y-G	35		
18	G-Y	36		
44	Y-BN	37		
19	BN-Y	38		
45	Y-S	39		
20	S-Y	40		
46	V-BL	41	SLOT 3	SLI TIP
21	BL-V	42	CIRCUIT 3	SLI RING
47	V-O	43	SLOT 3	SLI TIP
22	O-V	44	CIRCUIT 4	SLI RING
48	V-G	45	SLOT 3	SLI TIP
23	G-V	46	CIRCUIT 5	SLI RING
49	V-BN	47	SLOT 3	SLI TIP
24	BN-V	48	CIRCUIT 6	SLI RING
50	V-S	49		
25	S-V	50		

CONNECT TO ANY SLI CIRCUIT ON
A 2 X 4 CARD.



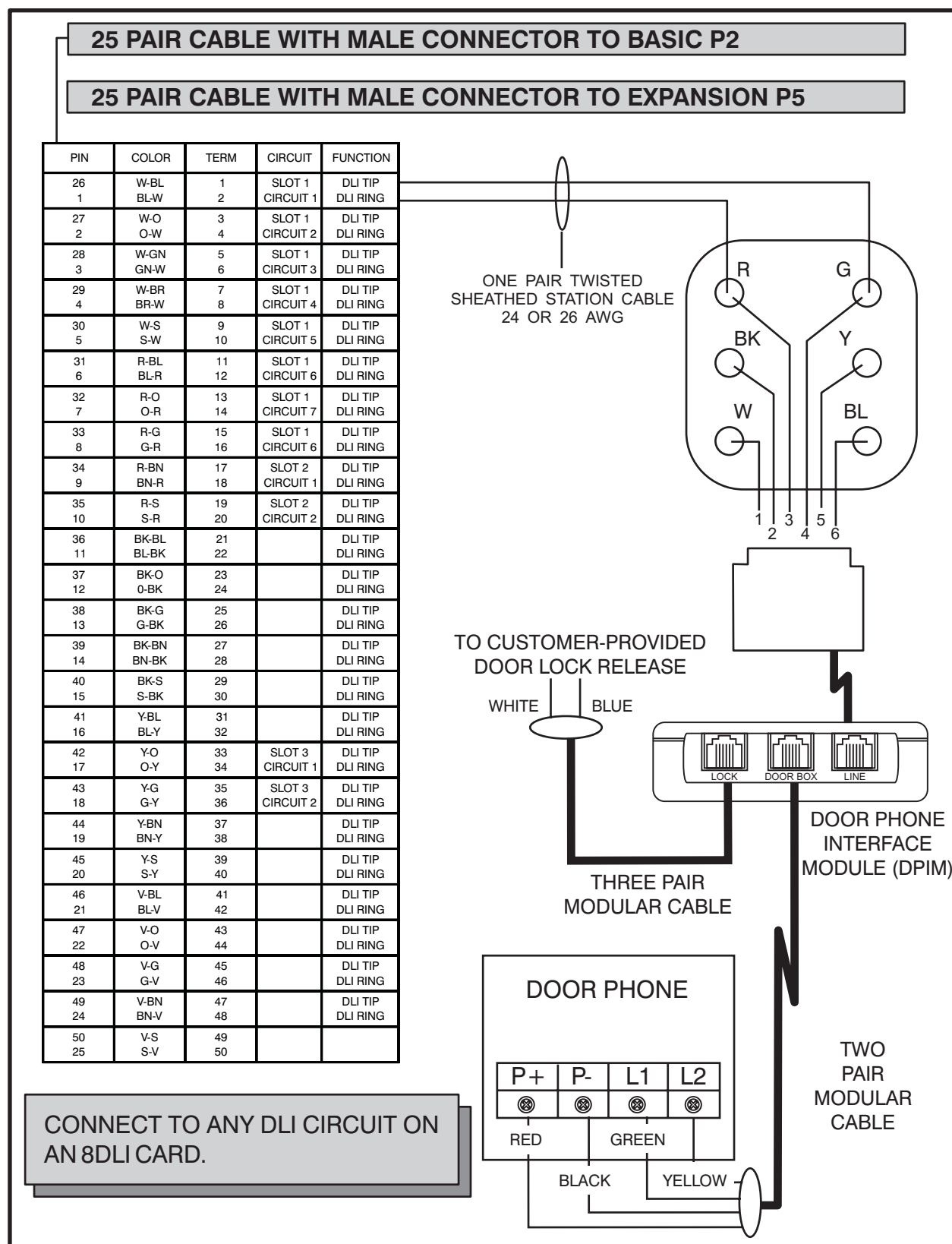
**MDF CONNECTIONS
SLT TO 2 X 4 SLI CARD**

FIGURE 6-9



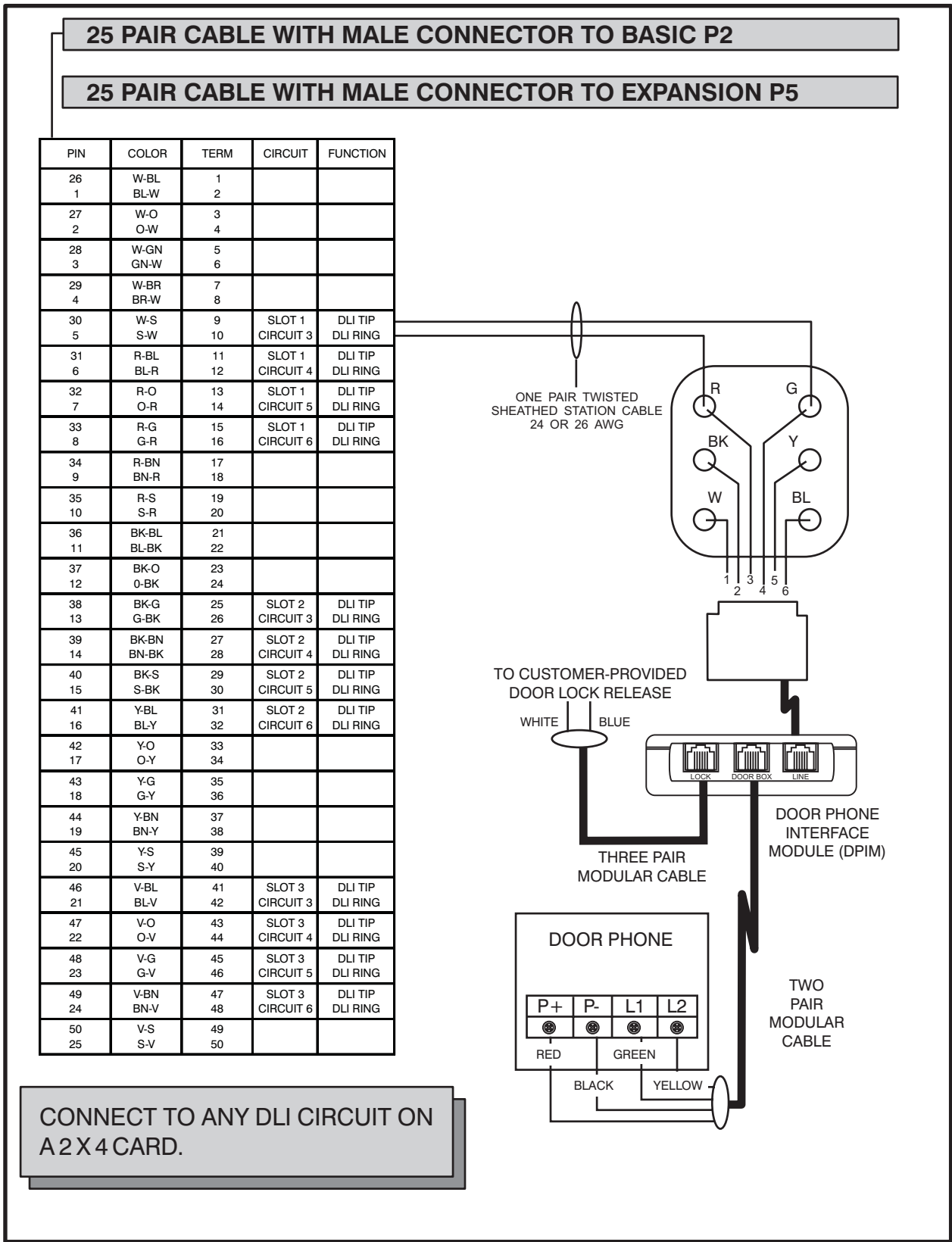
MDF CONNECTIONS
DOOR PHONE TO KSU P1

FIGURE 6-10



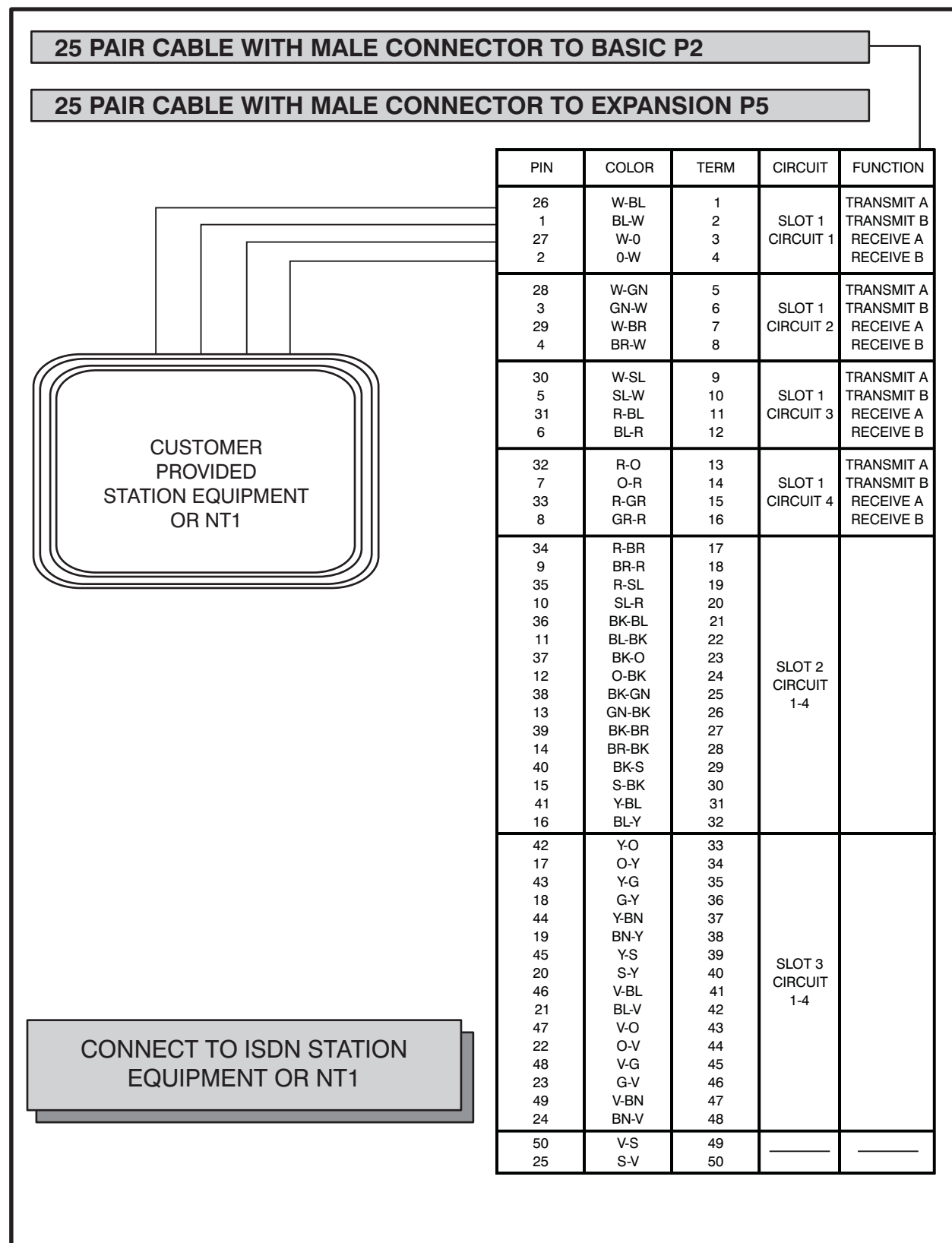
MDF CONNECTIONS
DOOR PHONE TO 8DLI CARD

FIGURE 6-11



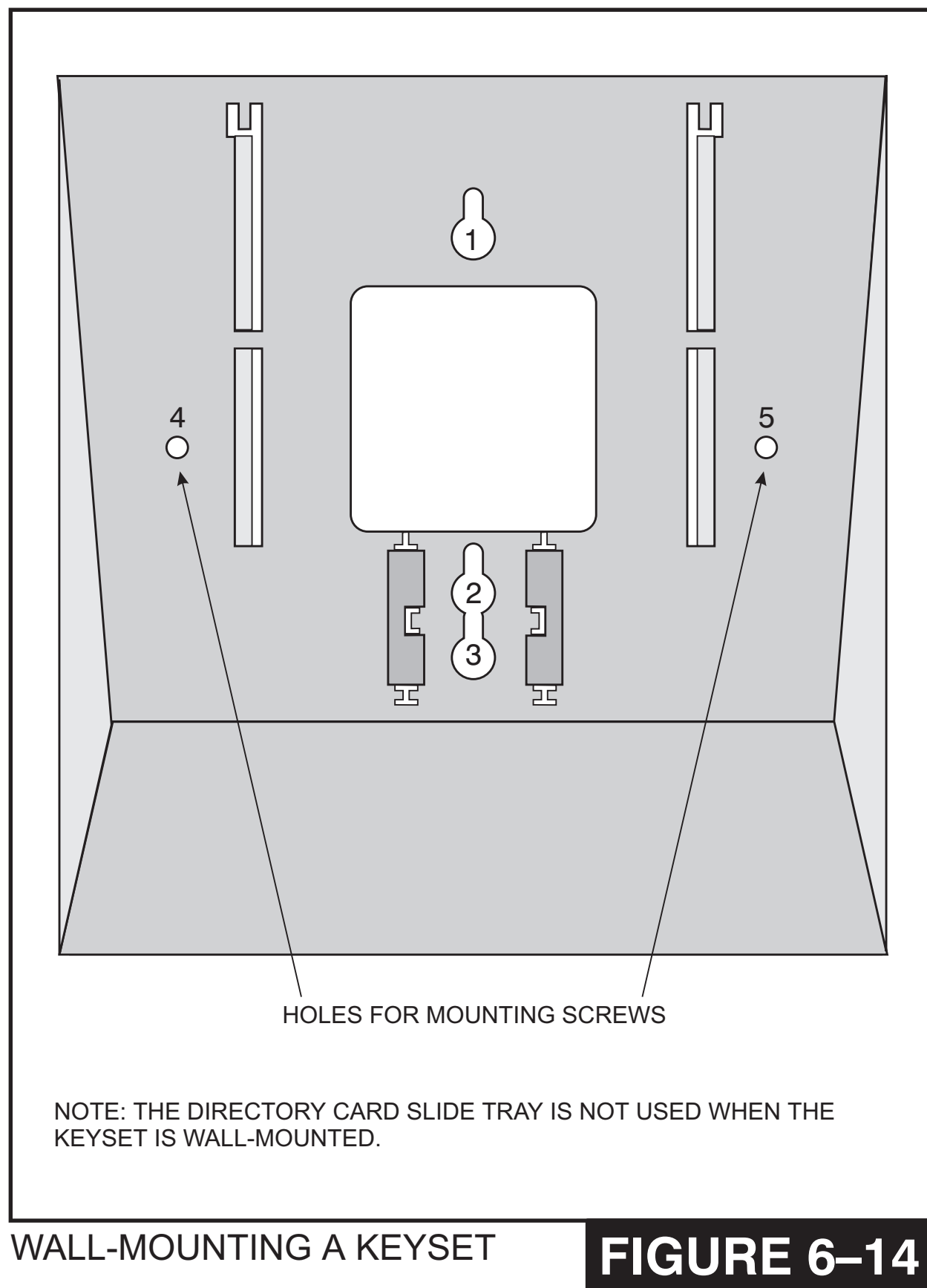
MDF CONNECTIONS
DOOR PHONE TO 2 X 4 CARD

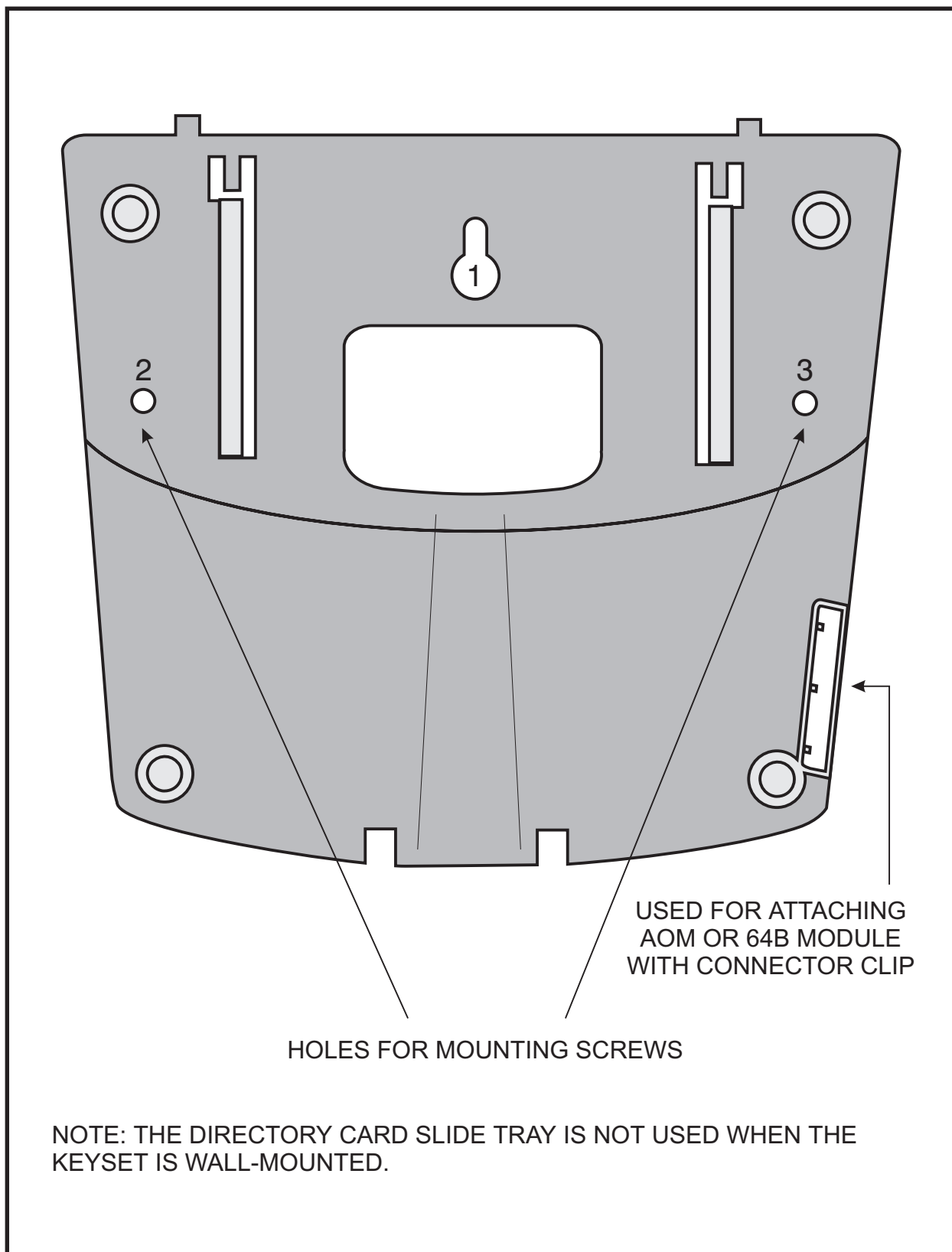
FIGURE 6-12



MDF CONNECTIONS FOR ISDN
STATION TO S4BRI CARD

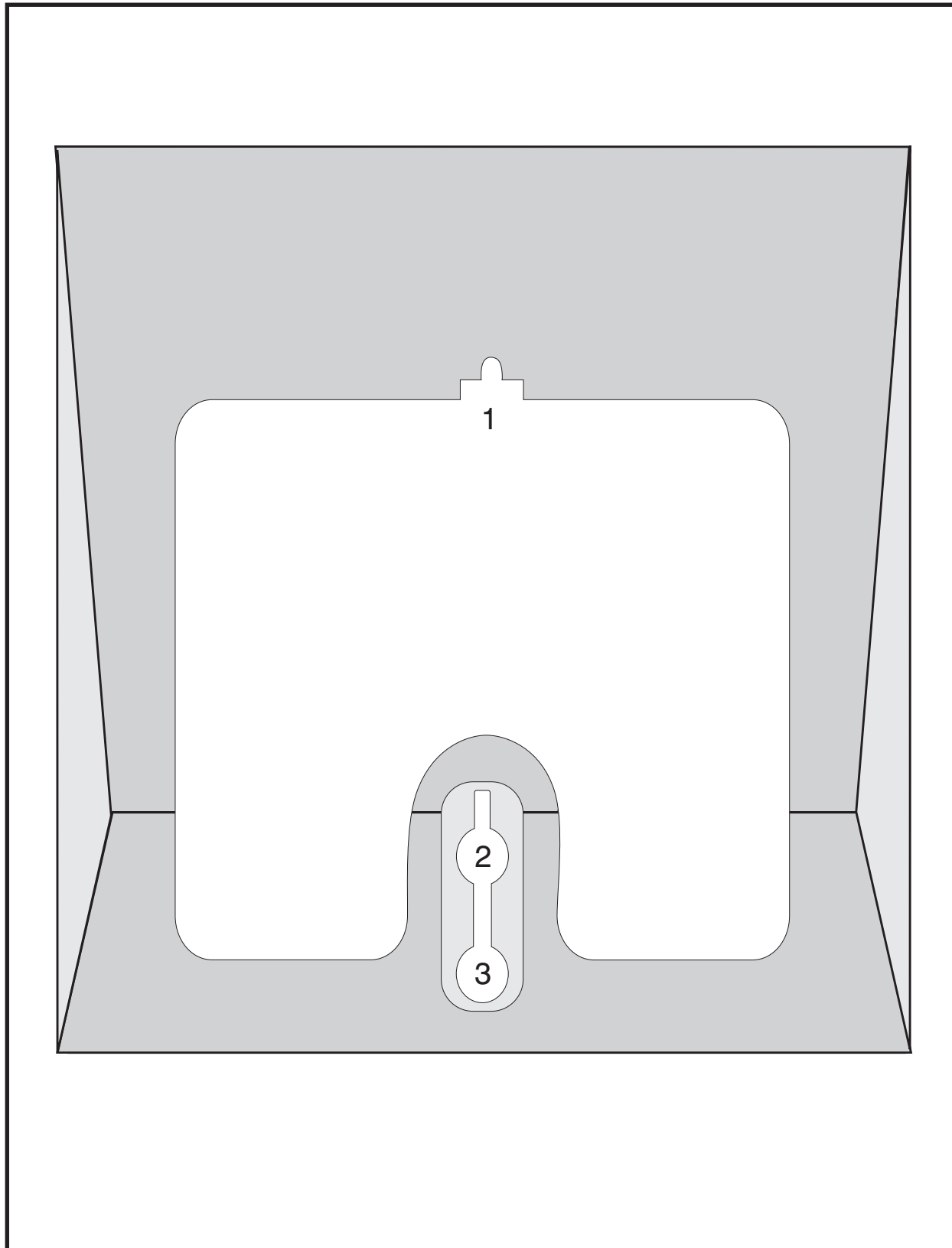
FIGURE 6-13





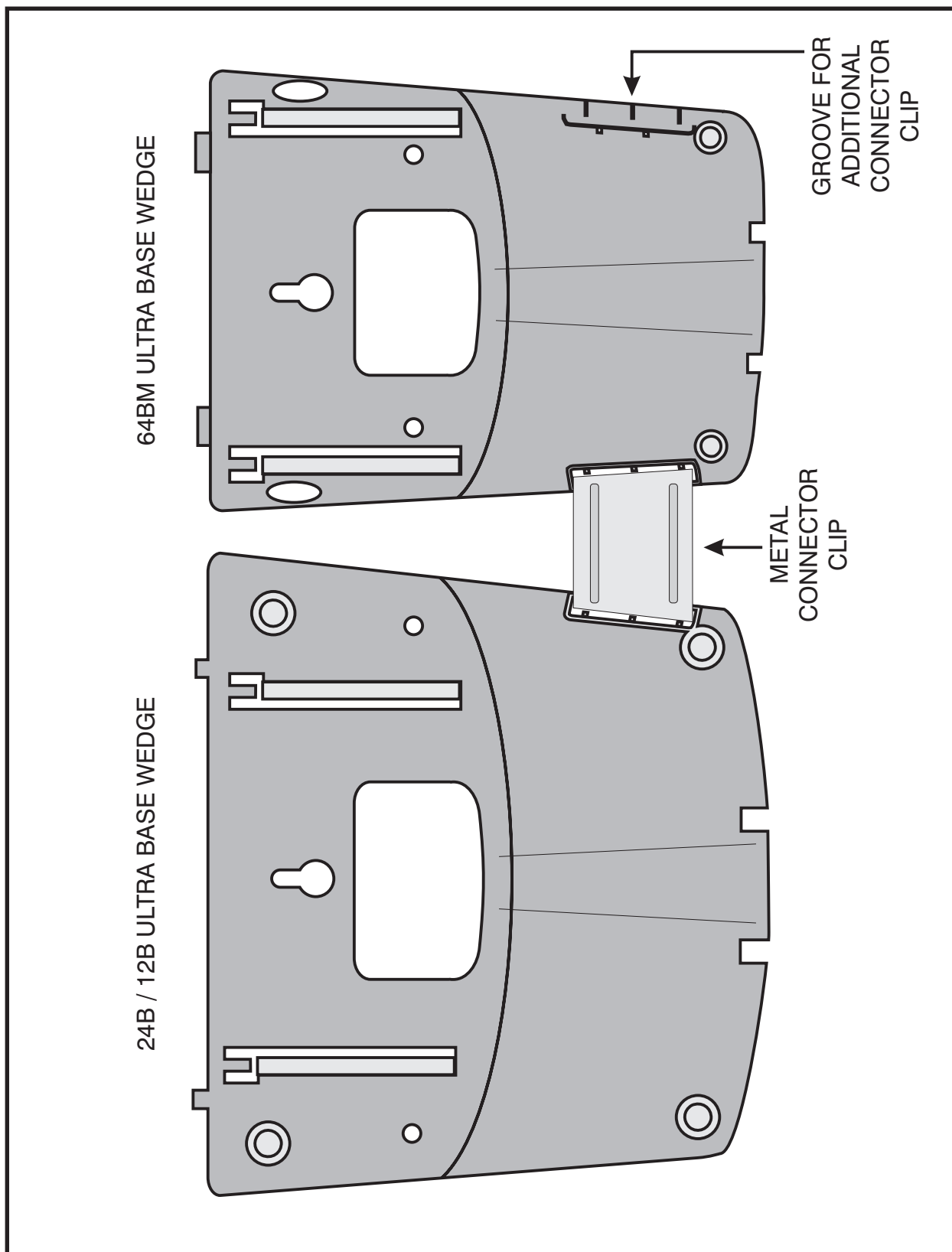
ULTRA BASE WEDGE

FIGURE 6-15



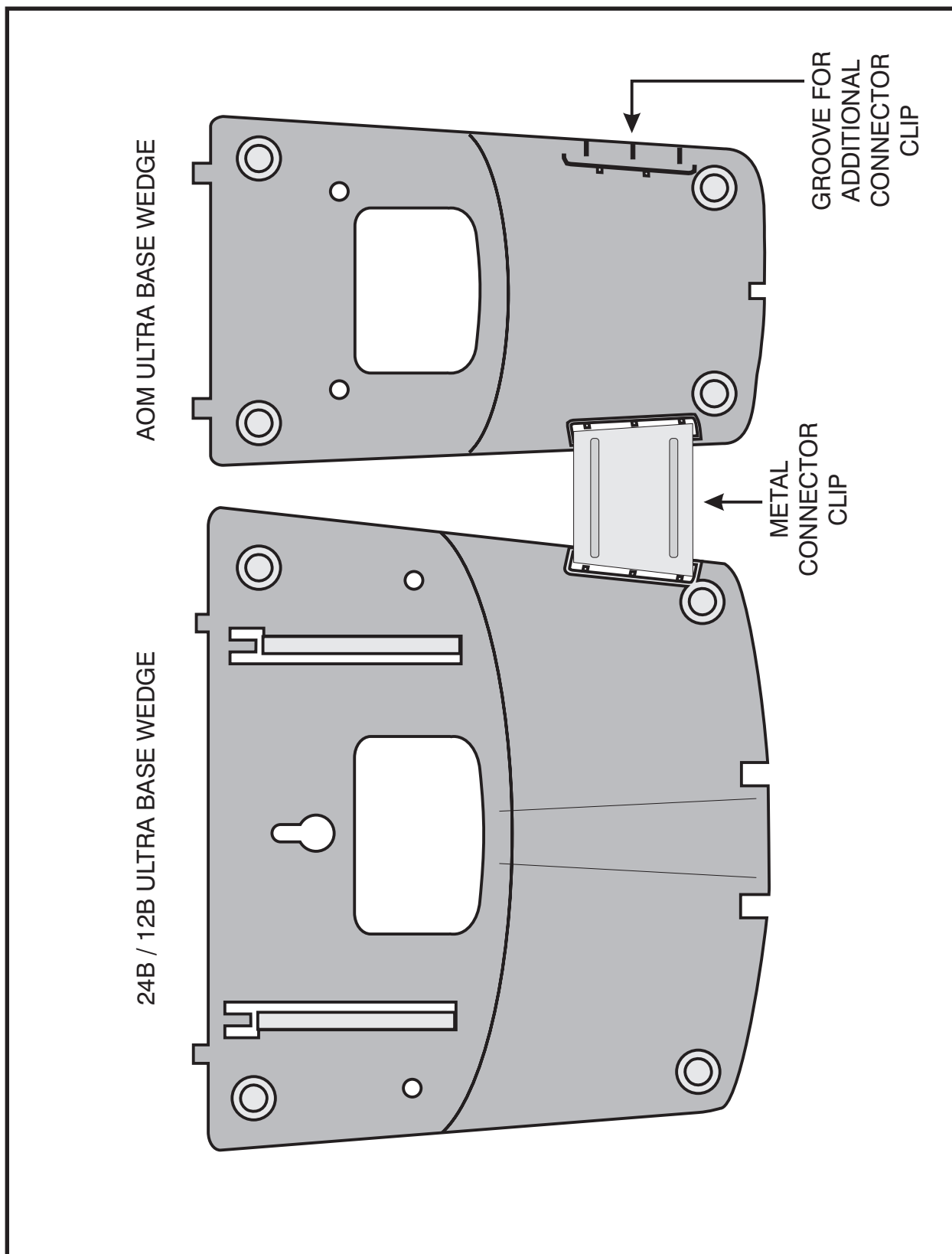
WALL-MOUNTING
AN iDCS KEYSET

FIGURE 6-16



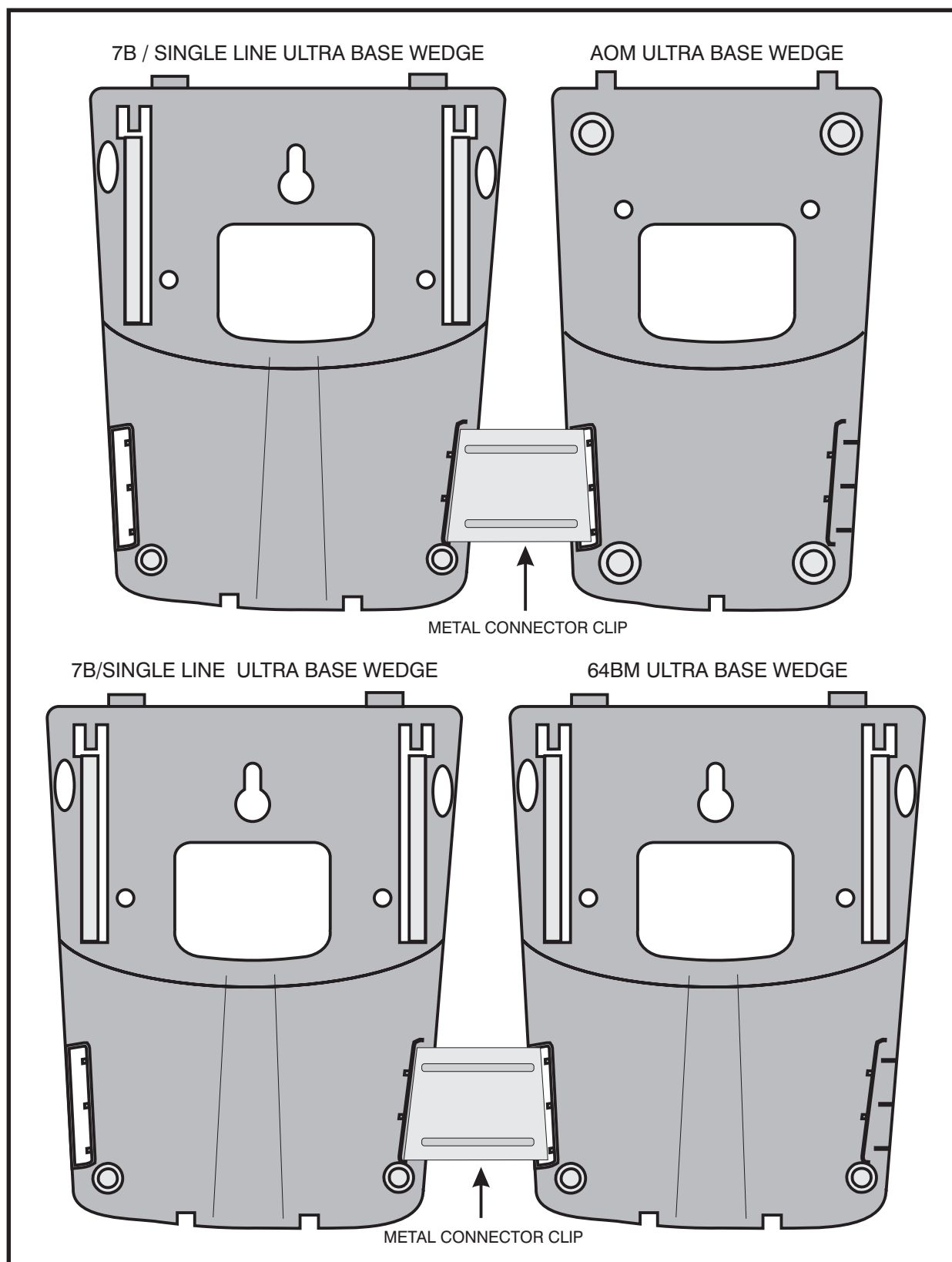
ATTACHING 24B/12B TO 64BM

FIGURE 6-17



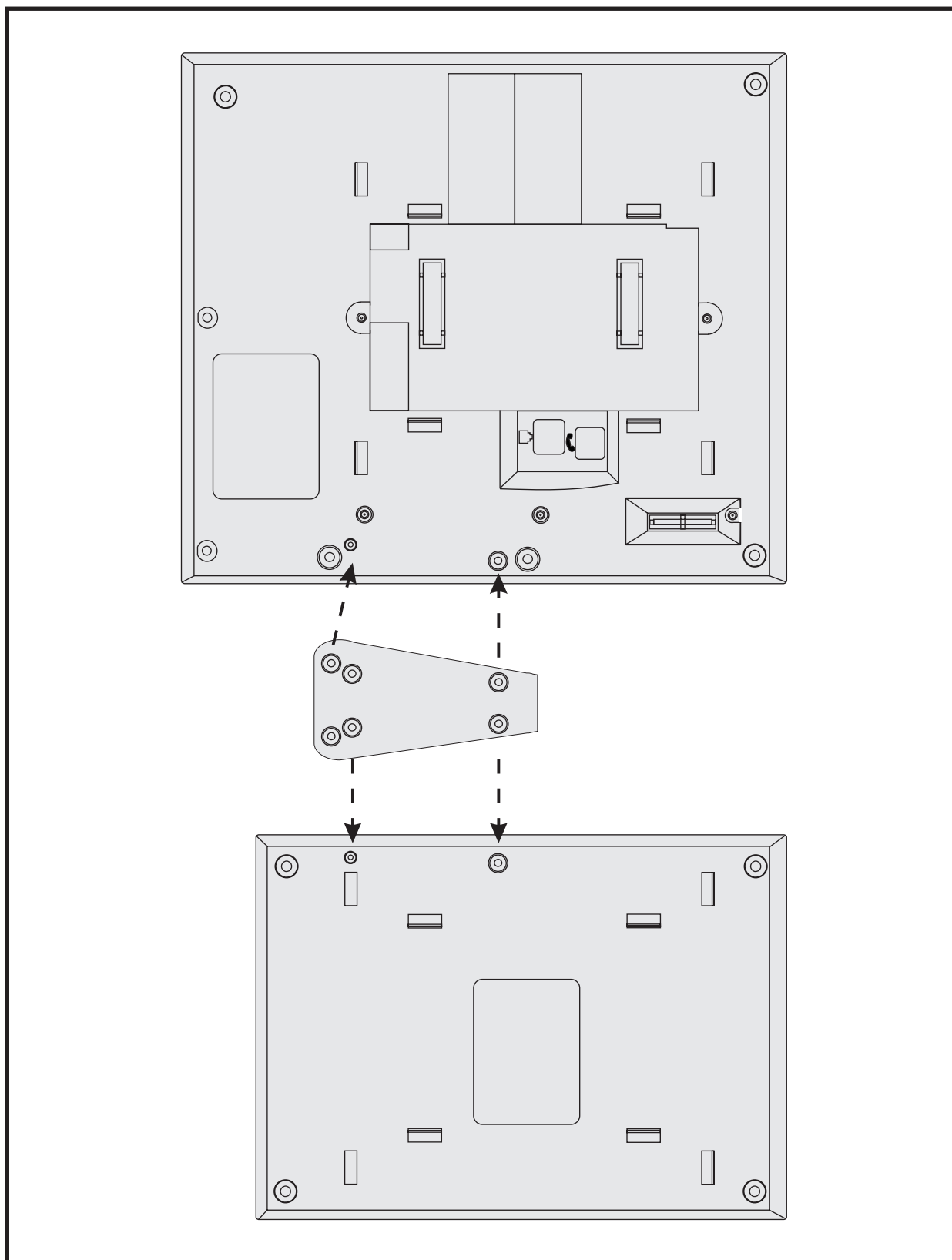
ATTACHING 24B/12B TO AOM

FIGURE 6-18



ATTACHING
7B/SINGLE LINE TO AOM AND
7B/SINGLE LINE TO 64BM

FIGURE 6-19



ATTACHING
iDCS 64B MODULE
TO AN iDCS KEYSET

FIGURE 6-20

PART 7. CONNECTING OPTIONAL EQUIPMENT

7.1 MUSIC ON HOLD/BACKGROUND MUSIC

Connect each customer-provided music source to the music input on the KSU connecting block ([see Figure 7-1](#)). The music input has internal automatic gain compensation features.

NOTE: The MOH input on the KSU can be switched between internal chimes and an outside source. The jumper S1 must be set to EXT for an external source to be available ([see Figure 7-2 for the location of S1](#)).

IMPORTANT NOTICE: In accordance with US Copyright Law, a license may be required from the American Society of Composers, Authors and Publishers (ASCAP) or another similar organization if copyrighted music is transmitted through the Music on Hold feature. Samsung Telecommunications America, Inc. hereby disclaims any liability arising out of failure to obtain such a license.

Each C.O. line (trunk) can be programmed to receive a music source, system generated TONE or NO MUSIC when it is put on hold ([see MMC 408](#)). Each keyset can receive a music source or NO MUSIC for background music. [See programming manual for instructions \(MMC 308\)](#).

7.2 EXTERNAL PAGING

The KSU provides a voice pair to be used with customer-provided paging equipment. Connect the customer provided paging equipment to the page 1 output pins of the P1 connecting block ([see Figure 7-3](#)). The page voice pair is 600 Ohms impedance. When the amplifier page input is not 600 ohm, a suitable impedance matching transformer must be used.

The KSU has a relay associated with the page output. This relay may be used for amplifier muting ([see Figure 7-3](#)) or zone control ([see Figure 7-4](#)). This relay contact pair is for control of low voltage circuits or amplifier output. The contacts are rated at 24 VDC-1 amp.

If installed, the SMISC card provides a second voice pair for connection to a second amplifier and 3 relays that may be defined as page zone control in [MMC 219](#) and assigned in [MMC 605](#) ([see Figure 7-4](#)). These relay contact pairs are for control of low voltage circuits or amplifier output. The contacts are rated at 24 VDC-1 amp.

WARNING: Do not attempt to connect commercial AC power to these contacts.

The SMISC card also provides a second independently controlled page output voice pair to be used with customer-provided paging equipment. Connect the customer provided paging equipment to the page 2 output pins of the P1 connecting block ([see Figure 7-3](#)). The page voice pair is 600 Ohms impedance. When the amplifier page input is not 600 ohm, a suitable impedance matching transformer must be used.

7.3 COMMON BELL

A customer-provided loud ringing device can be controlled using one of the relay contact pairs on the SMISC card ([see Figure 7-5](#)). Each of these 3 relays can be individually defined as a common bell in [MMC 219](#) and assigned in [MMC 204](#). These relay contact pairs are for control of low voltage circuits or amplifier output. The contacts are rated at 24 VDC-1 amp.

Programming allows for INTERRUPTED or CONTINUOUS operation of the contacts using [MMC 204](#). The interrupted selection follows the C.O. ring cadence—one second ON/three seconds OFF.

After connecting a common bell, you must assign it to a group in [MMC 601](#) as a ring destination by using the code for Common Bell.

The basic steps for common bell operation are the following:

- a. Wire the loud ringing device to the common bell control contact pair.
- b. Program the relay as a common bell in [MMC 219](#).
- c. Program the contacts for continuous or steady operation.
- d. Program the station hunt group to include the common bell.
- e. Assign the trunk to ring the hunt group containing the common bell.

Common bell control can be used with station hunt groups, individual stations and Universal Answer. Contacts are rated at 24 VDC-1 amp.

WARNING: Do not attempt to connect commercial AC power to these contacts.

7.4 RING OVER PAGE

When a customer-provided paging system is installed, incoming calls can be assigned to ring over page. Program the line or lines to ring a hunt group. Using [MMC 601](#), assign ROP as a destination in this hunt group. Ring over page can be used for day or night operation or both.

7.5 STATION MESSAGE DETAIL RECORDING (SMDR)

To receive an SMDR printout, connect a customer-provided printer to one of the serial interface connectors on the SMISC card ([see Figure 7-6](#)). SI/O 2 defaults as SMDR.

Use a pin to pin RS232C cable. Only pins 2, 3, 5 and 7 are required ([see Figure 7-7](#)). When the printer or optional call accounting device needs to be more than 15 feet away from the KSU, use shielded computer cable. Attach a male DB9 connector to the SMISC end and then attach one that matches the requirements of the call accounting device or printer to the other end. This cable must not exceed 300 feet.

Use [MMC 725](#) to set SMDR print options and [MMC 804](#) to set the transmission parameters and the SMISC port.

7.6 PC PROGRAMMING

To program the system via a personal computer (PC), connect a PC equipped with PCMMC to a serial interface connector on the SMISC card ([see Figure 7-6](#)). SI/O 1 defaults as PCMMC.

Use an RS232C cable with connections as shown in Figure 7-8. When the PC needs to be more than 15 feet away from the KSU, use shielded computer cable. Attach a male DB9 connector to the SMISC end and then attach one that matches the requirements of the PC to the other end. This cable must not exceed 300 feet.

Use [MMC 804](#) to set the transmission parameters and the SMISC port.

7.7 REMOTE PROGRAMMING

To remotely program a system, connect a customer-provided modem to a serial interface connector on the SMISC card ([see Figure 7-6](#)).

Use an RS232C cable as shown in [Figure 7-9](#). When the modem needs to be more than 15 feet away from the KSU, use shielded computer cable. Attach a male DB9 connector to the SMISC end and then attach one that matches the requirements of the modem to the other end. This cable must not exceed 300 feet.

Use [MMC 804](#) to set the transmission parameters and the SMISC port to be used.

7.8 POWER FAILURE TRANSFER (PFT)

When the system loses AC power, the first two loop start lines of each S3TRK card are automatically switched to the PFT pairs on the connecting block ([see Figure 7-10](#)). Cross-connect these outputs as shown in [Figure 7-10](#) to the TIP and RING pairs of the single line phones that are to have power failure operation.

7.9 VOICE MAIL/AUTO ATTENDANT

System operation provides special programming and hardware for use with a customer-provided voice mail/auto attendant system. The single line stations on the 2 SLI card, S8SLI card and the 2 X 4 SLI card can provide a disconnect signal required

for VM/AA operation. Use one pair twisted #24 AWG or #26 AWG jumper wire to cross-connect these SLI circuits to the VM/AA system ([see Figure 7-11](#)).

Program these ports for VM/AA use in [MMC 207](#) and set VM/AA options in [MMC 726](#). As default [MMC 726](#) comes programmed to interface with Starmail. [See the Standard Telephone User Guide for feature codes and instructions \(how to light message lights etc.\)](#).

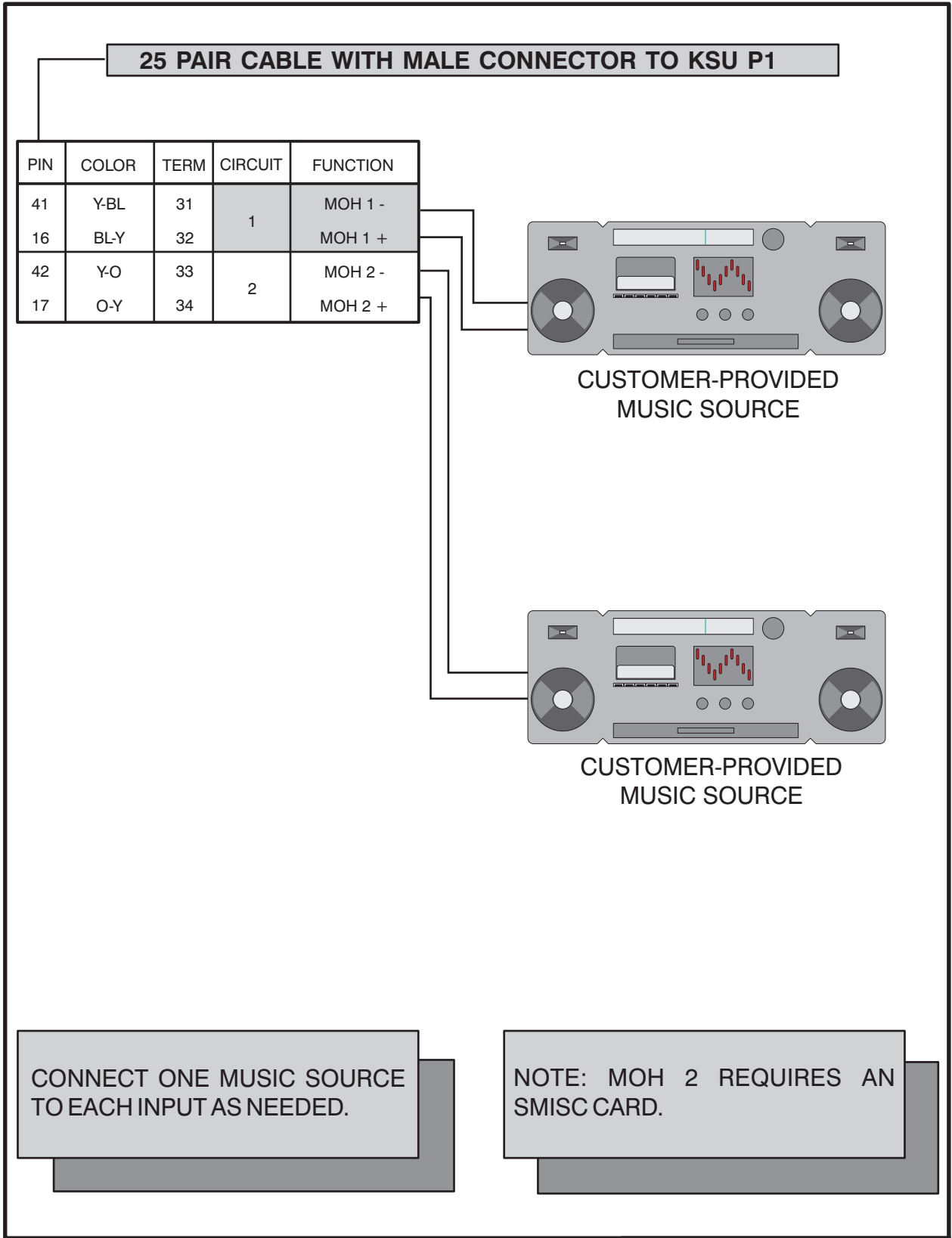
7.10 CONNECTING SYSTEM BACKUP BATTERIES TO THE iDCS 100 POWER SUPPLY

The iDCS 100 power supply contains a monitoring circuit to switch the system to customer provided 48VDC batteries when AC power is interrupted. Calls in progress are not disconnected. The power supply circuitry monitors and recharges batteries as needed.

Connect four 12V batteries or eight 6V batteries in series. Any NICAD or lead acid (car or motorcycle type) battery can be used if its rating is not less than 6AH (amp hours) but not more than 40 AH. The batteries must be located within three feet of the KSU. Use the factory-supplied wire harness with 36" red and black leads to connect batteries ([see Figure 7-12](#)).

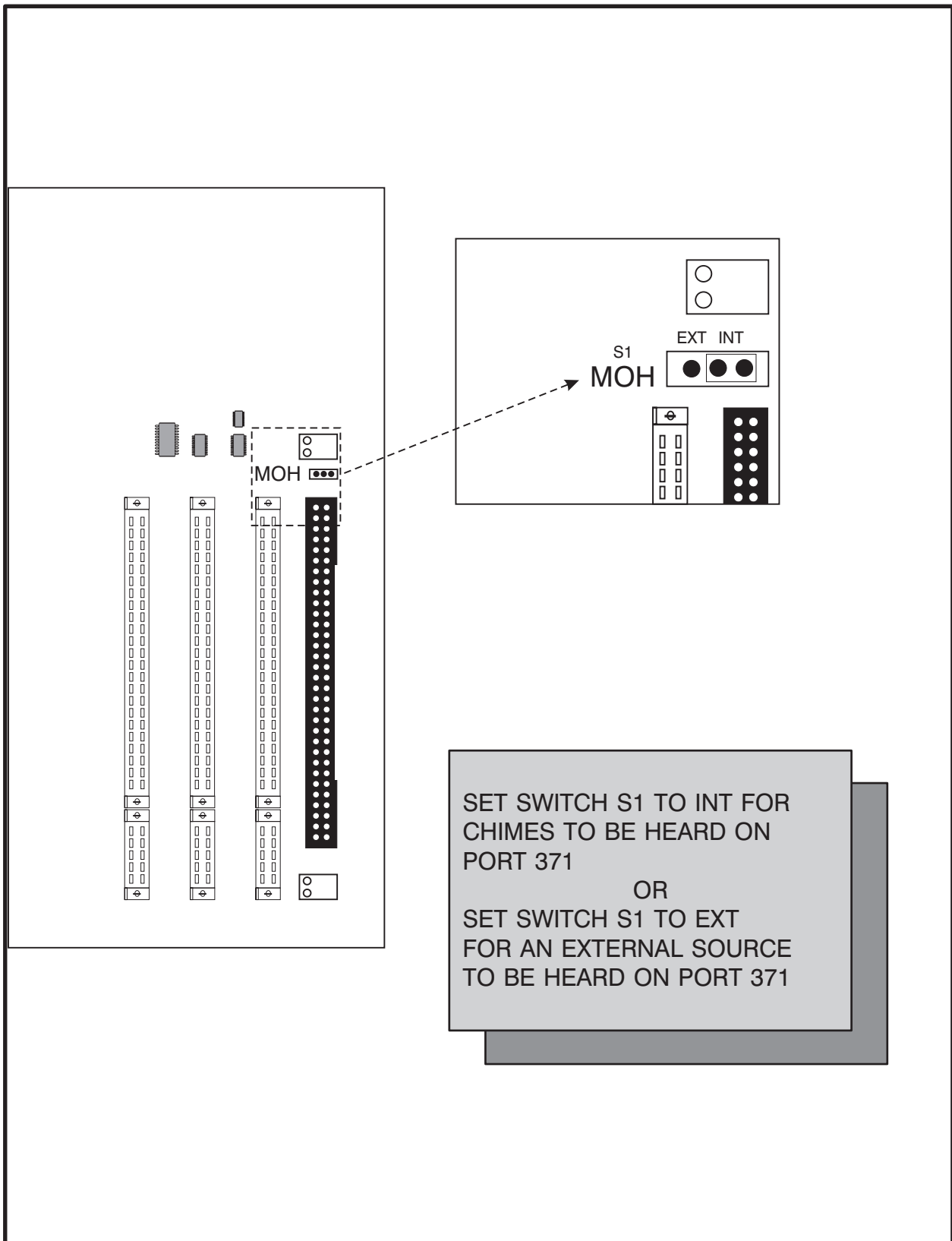
Observe the following precautions when installing batteries:

- a. Make sure the batteries you install conform to local building, fire and safety codes. Some battery types emit hydrogen gas during the charging state and may require venting to fresh air.
- b. Do not place batteries directly on a concrete floor. This causes them to discharge very quickly.
- c. Follow the battery manufacturer's recommended installation and maintenance procedures.



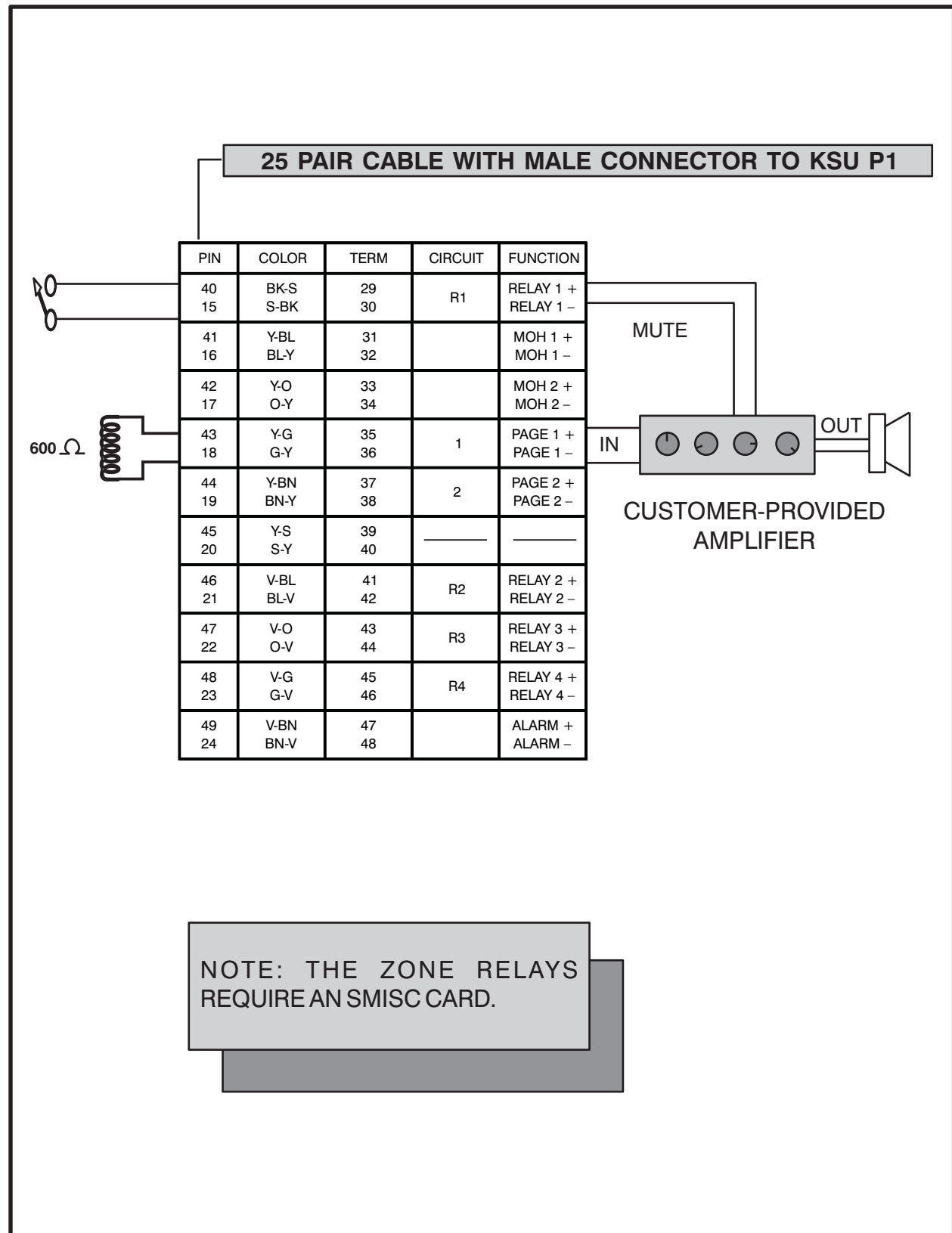
MDF CONNECTIONS CONNECTING MOH SOURCES TO KSU

FIGURE 7-1



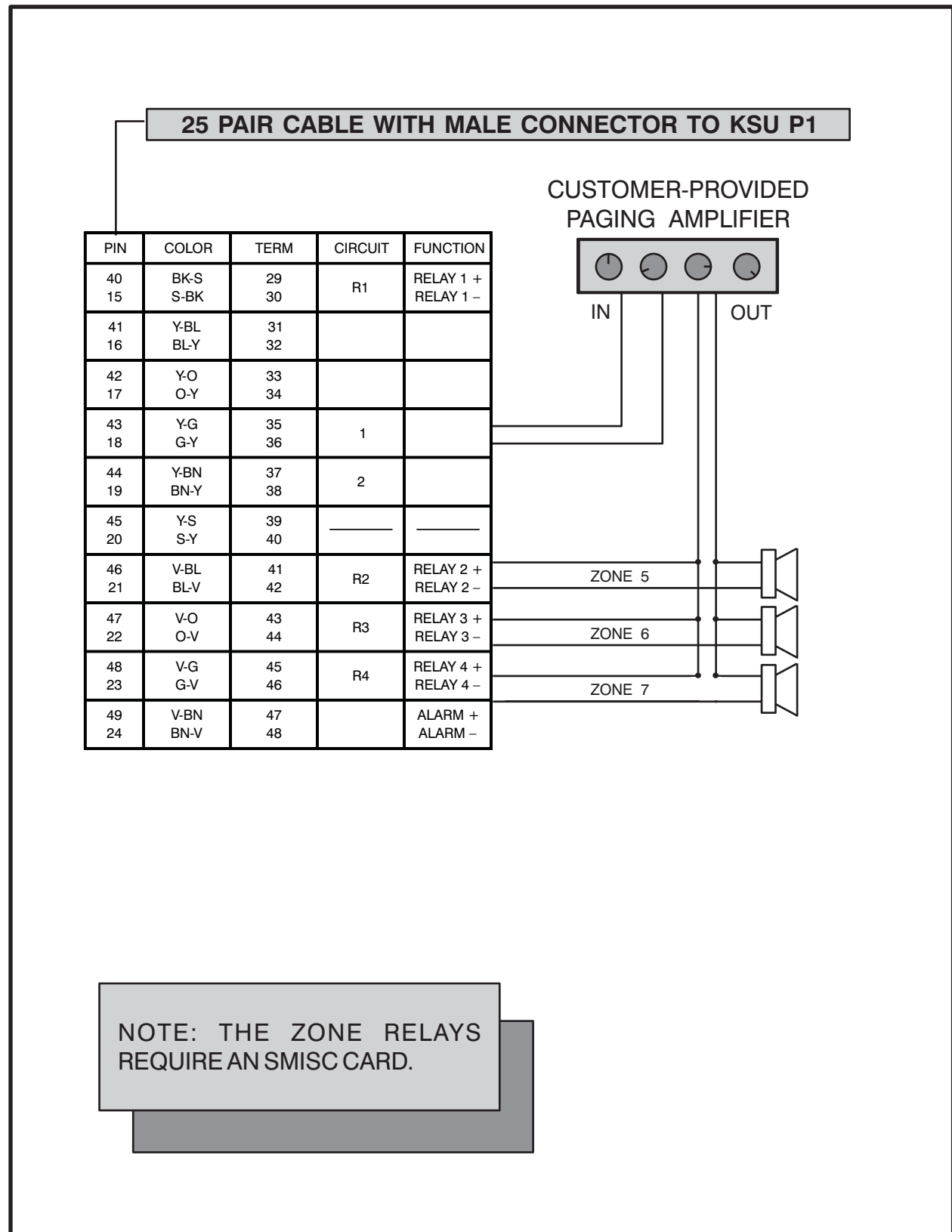
SETTING JUMPER SWITCH S1

FIGURE 7-2



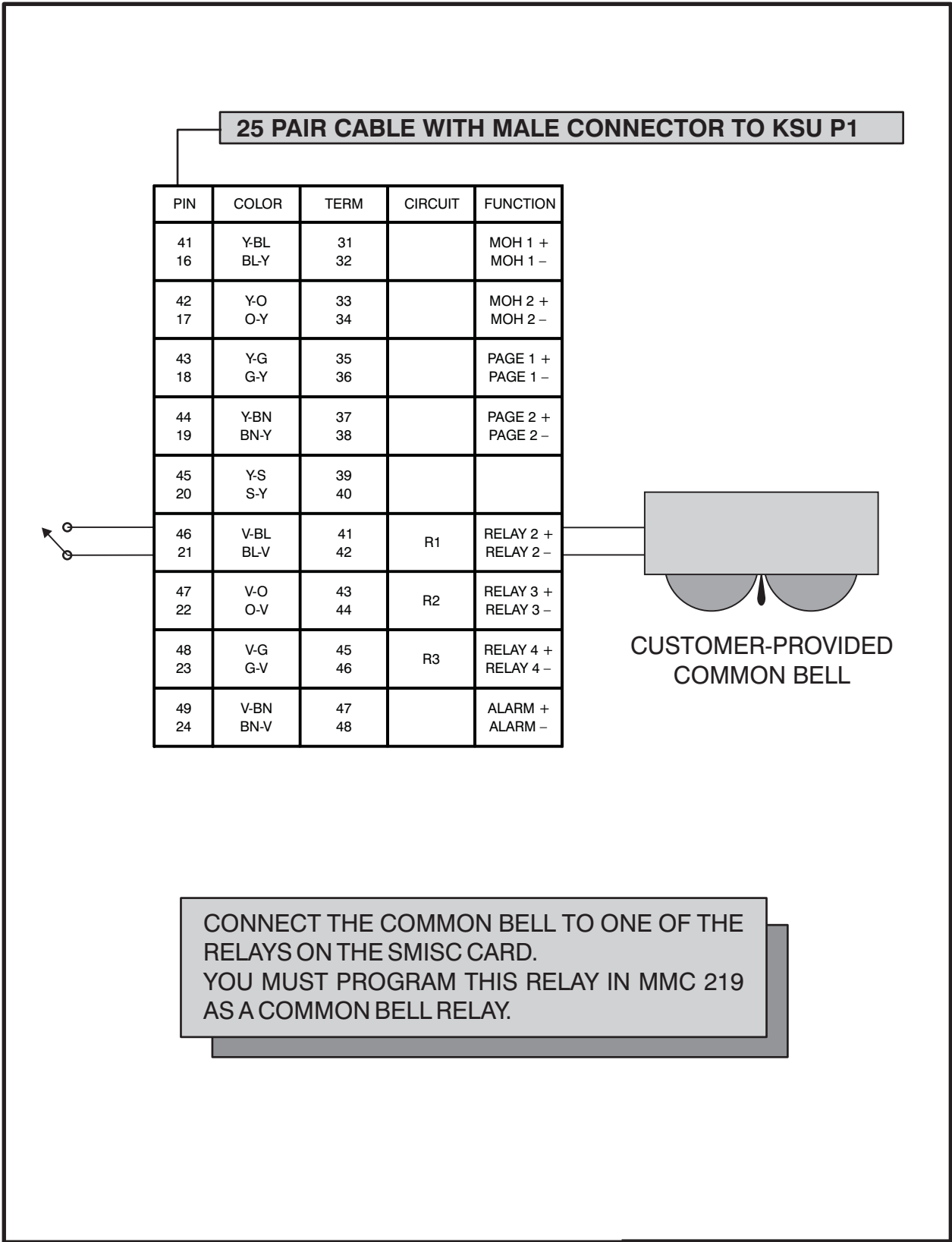
MDF CONNECTIONS CONNECTING
PAGE AMPLIFIER TO KSU

FIGURE 7-3



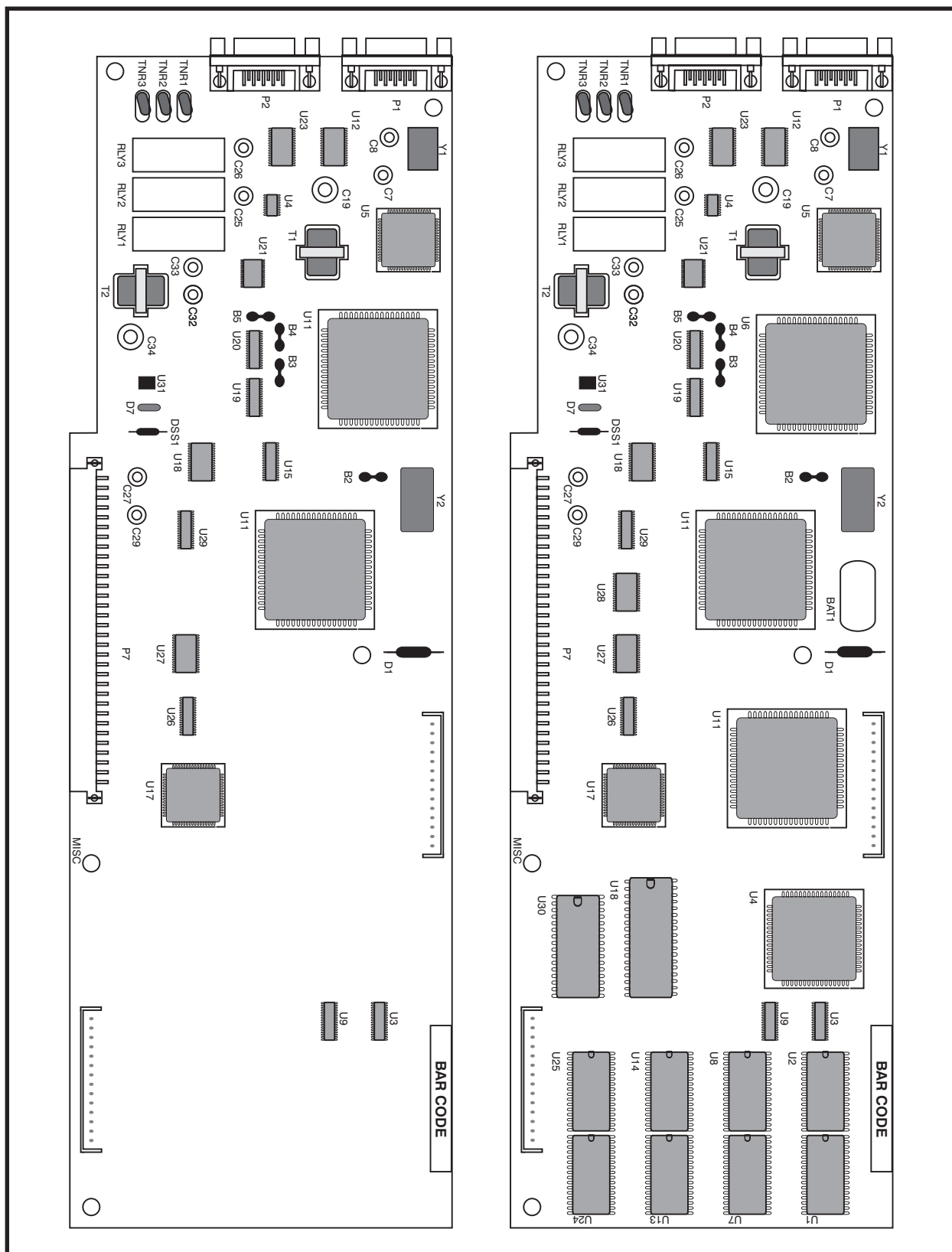
MDF CONNECTIONS CONNECTING
PAGE AMPLIFIER TO KSU

FIGURE 7-4



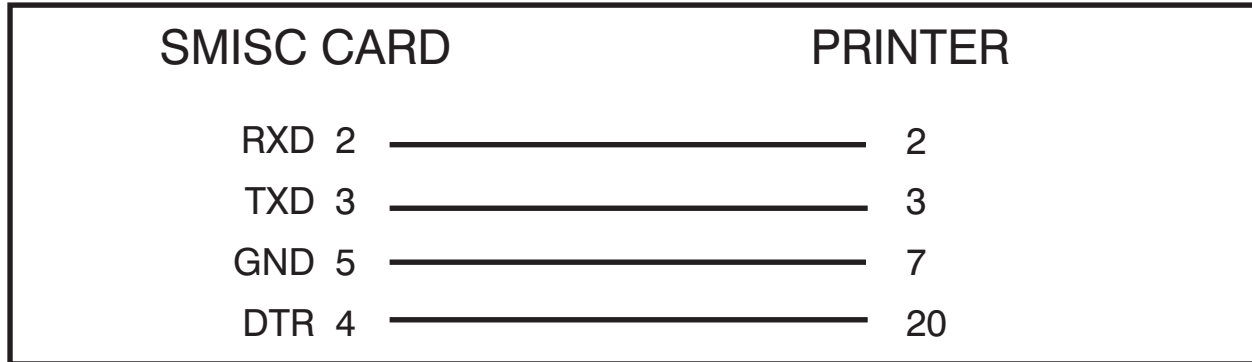
MDF CONNECTIONS
COMMON BELL CONTACTS

FIGURE 7-5



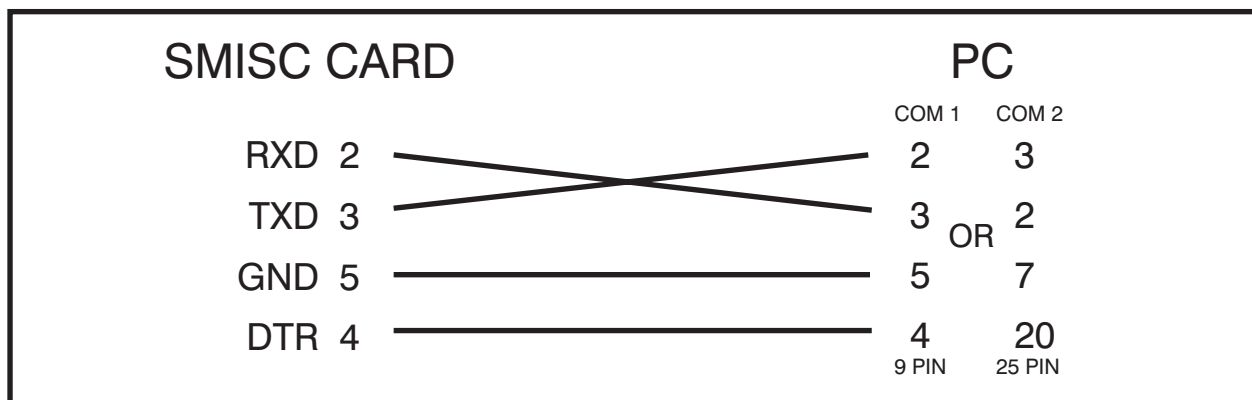
SMISC 1 AND 2 CARDS

FIGURE 7-6



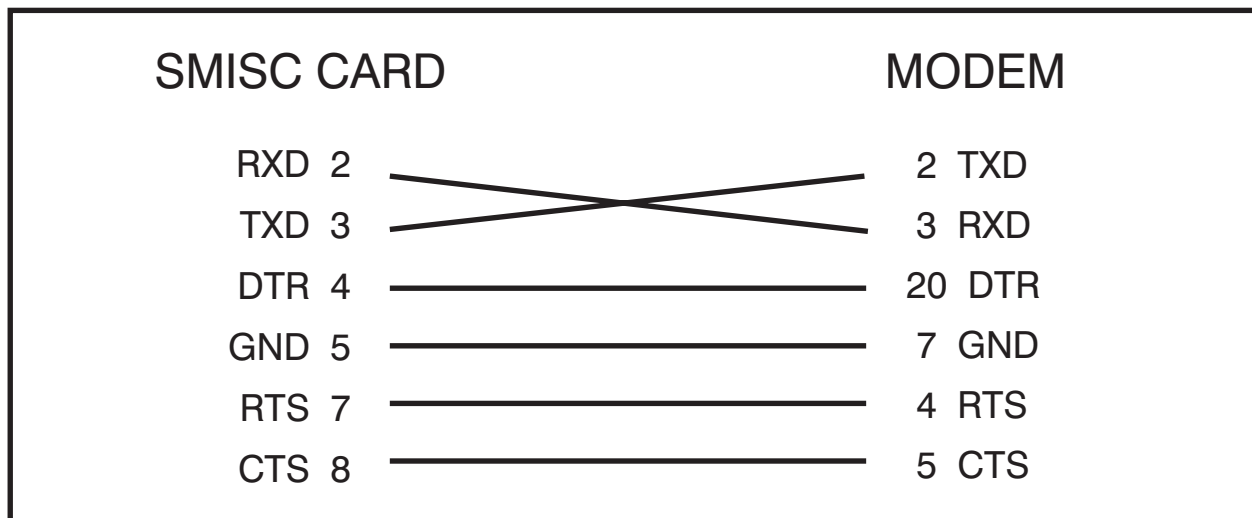
PIN CONNECTIONS FOR SMISC
CARD TO PRINTER

FIGURE 7-7



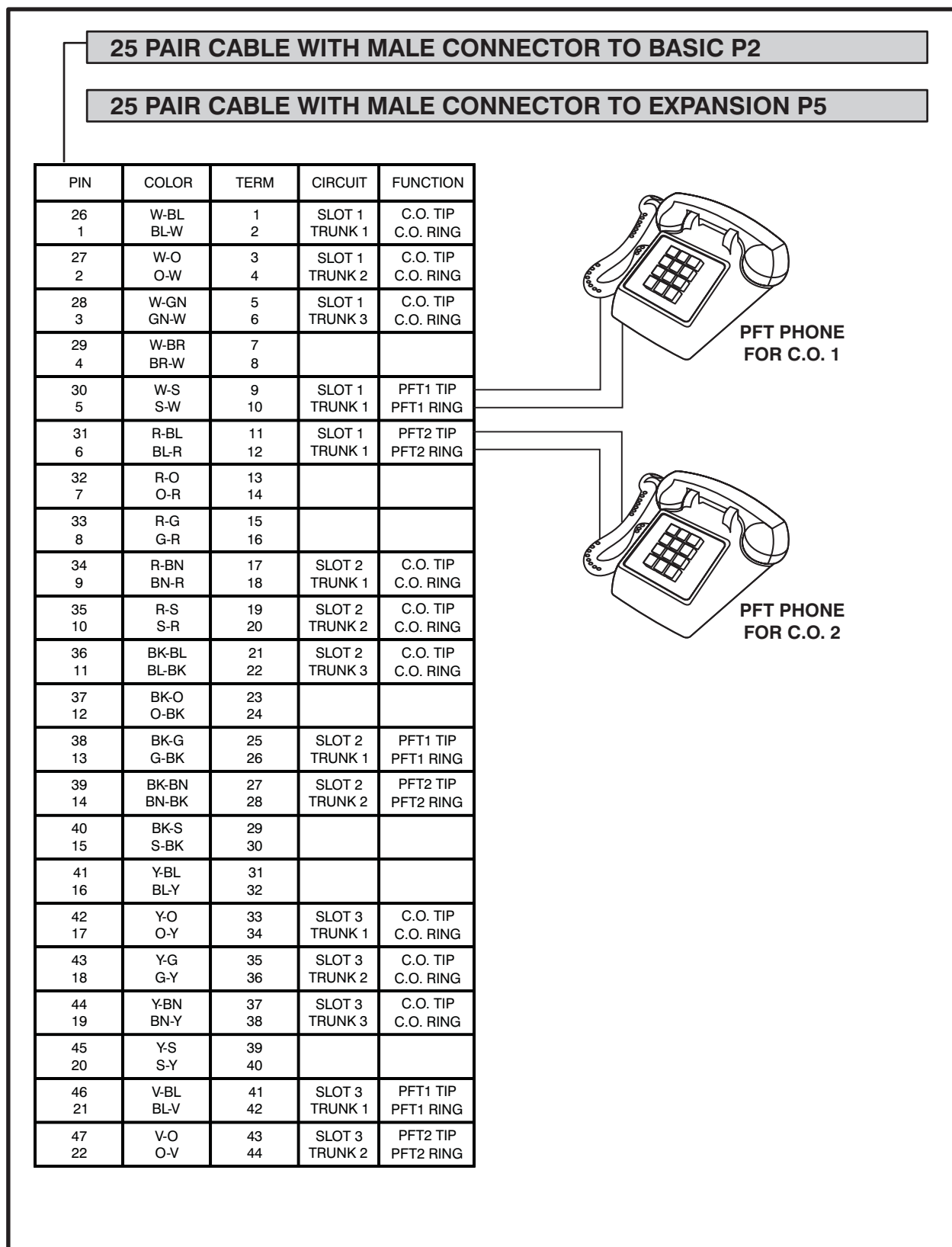
PIN CONNECTIONS FOR SMISC
CARD TO PERSONAL COMPUTER

FIGURE 7-8



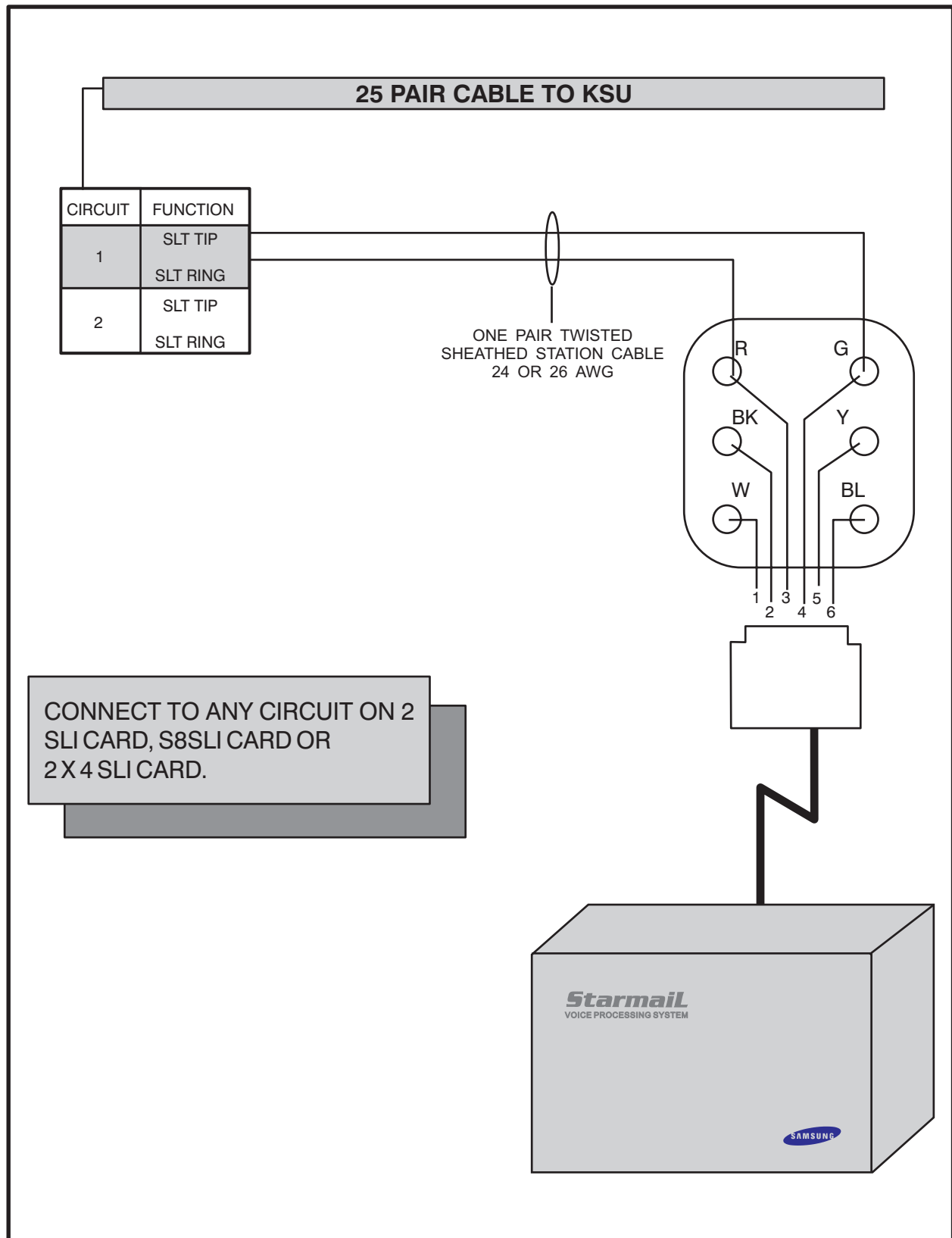
PIN CONNECTIONS FOR SMISC
CARD TO MODEM

FIGURE 7-9



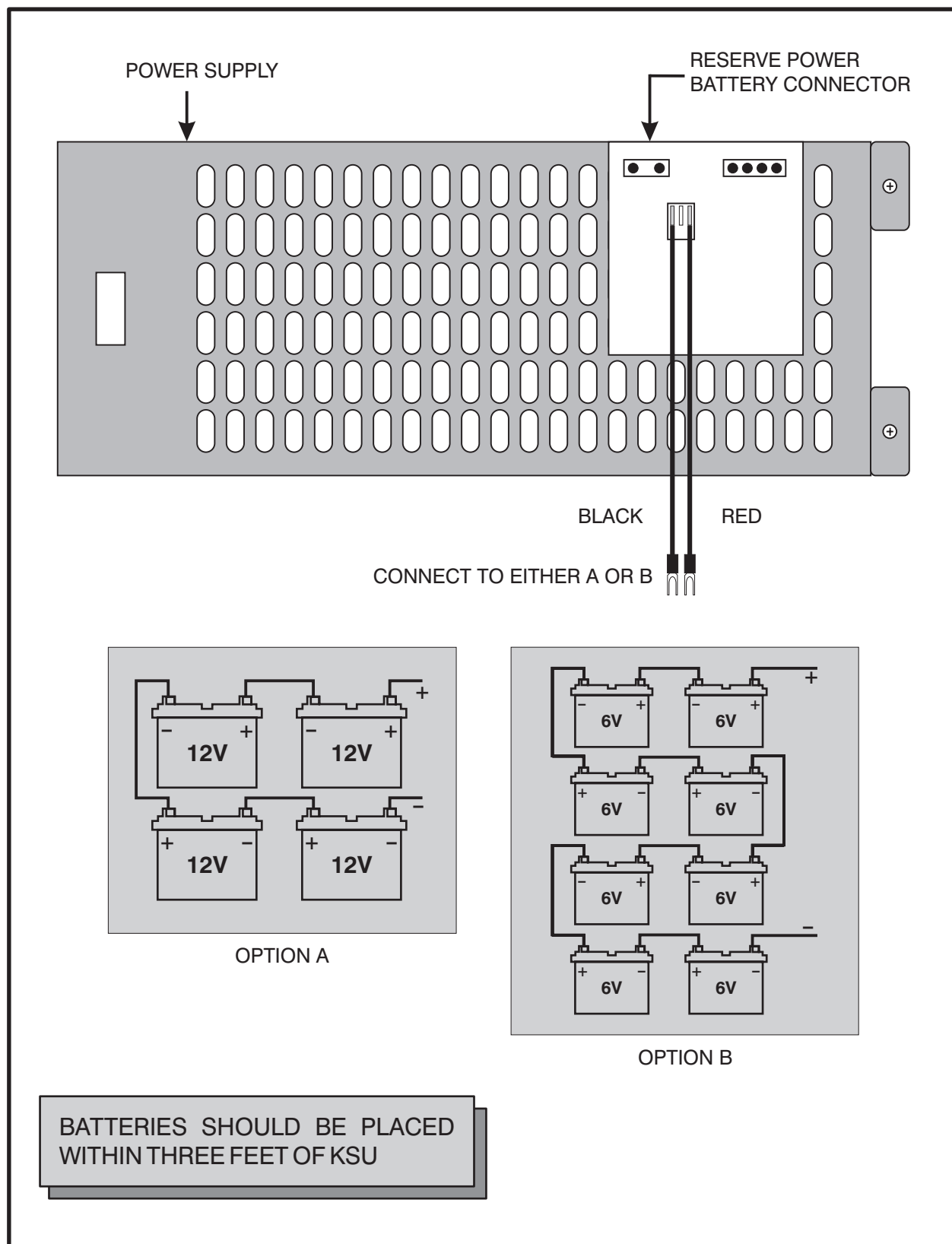
CONNECTING SLTS TO PFT
CIRCUITS ON S3TRK CARD

FIGURE 7-10



MDF CONNECTIONS
VOICE MAIL TO SLI CARD

FIGURE 7-11



RESERVE POWER BATTERY
CONNECTIONS

FIGURE 7-12

PART 8. INSTALLING KEYSSET DAUGHTERBOARDS

8.1 KDB DLI

Before performing this procedure, the line cord must be unplugged from the keyset. The base wedge should then be removed, the keyset should be placed face down on a soft surface and the four base retaining screws removed ([see Figure 8-1](#)).

The base should now be separated from the keyset and the keyset top half set aside. The KDb DLI can now be attached to the keyset base with the four screws supplied ([see Figure 8-2](#)). Care should be taken to ensure that the modular socket shows through the access hole in the base ([see Figure 8-3](#)).

Invert the base assembly over the keyset and plug the ribbon cable into the socket on the keyset PCB ([see Figure 8-4](#)) while making sure no damage occurs to the keyset PCB. Reattach the base to the keyset and test to ensure normal keyset operation.

8.2 KDB SLI

Before performing this procedure, the line cord must be unplugged from the keyset. The base wedge should then be removed, the keyset should be placed face down on a soft surface and the four base retaining screws removed ([see Figure 8-1](#)).

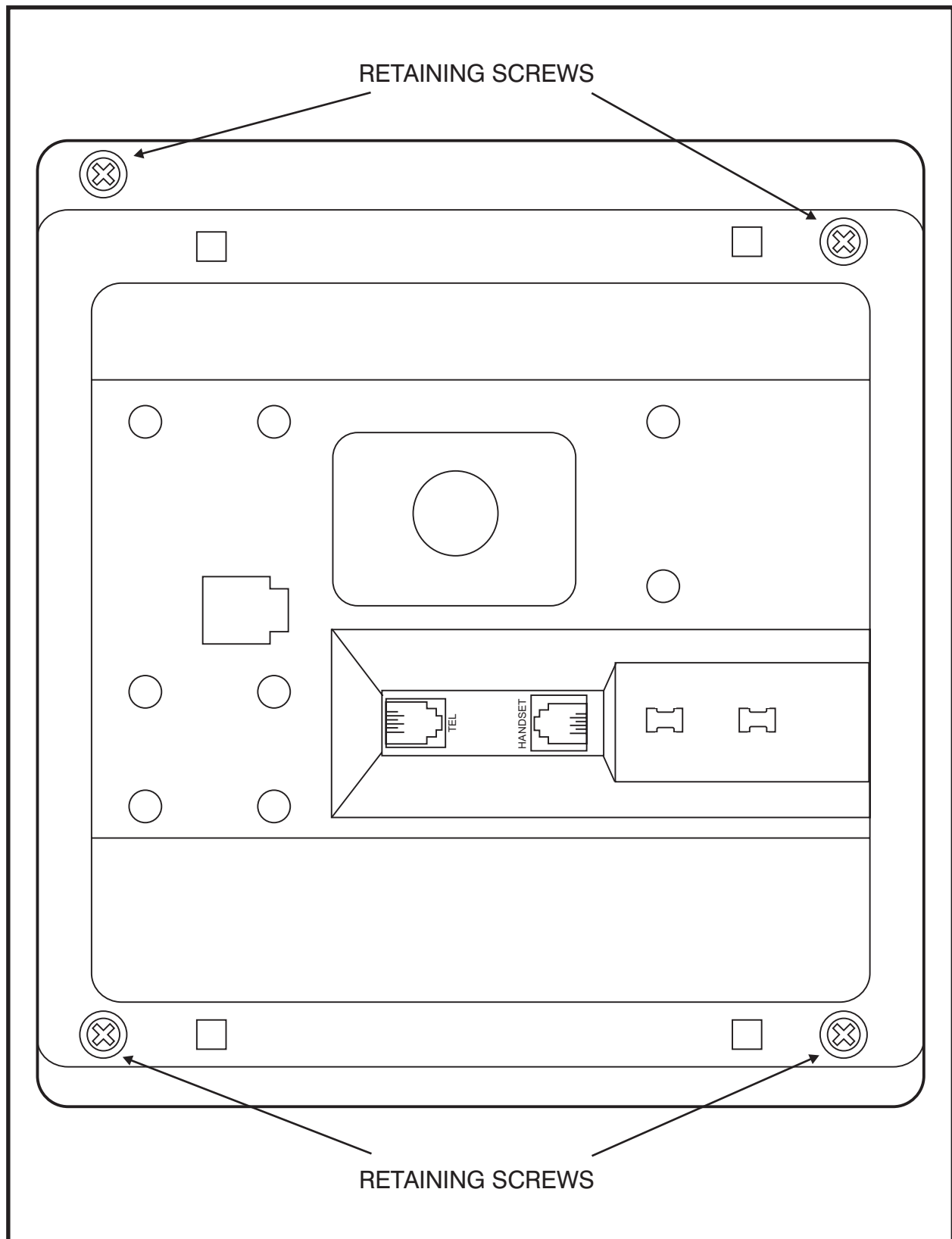
The base should now be separated from the keyset and the keyset top half set aside. The KDb SLI can now be attached to the keyset base with the six screws supplied ([see Figure 8-5](#)). Care should be taken to ensure that the modular socket shows through the access hole in the base ([see Figure 8-3](#)).

Invert the base assembly over the keyset and plug the ribbon cable into the socket on the keyset PCB ([see Figure 8-4](#)) while making sure no damage occurs to the keyset PCB. Reattach the base to the keyset and test to ensure normal keyset operation.

8.3 CONNECTING TO THE KDBS

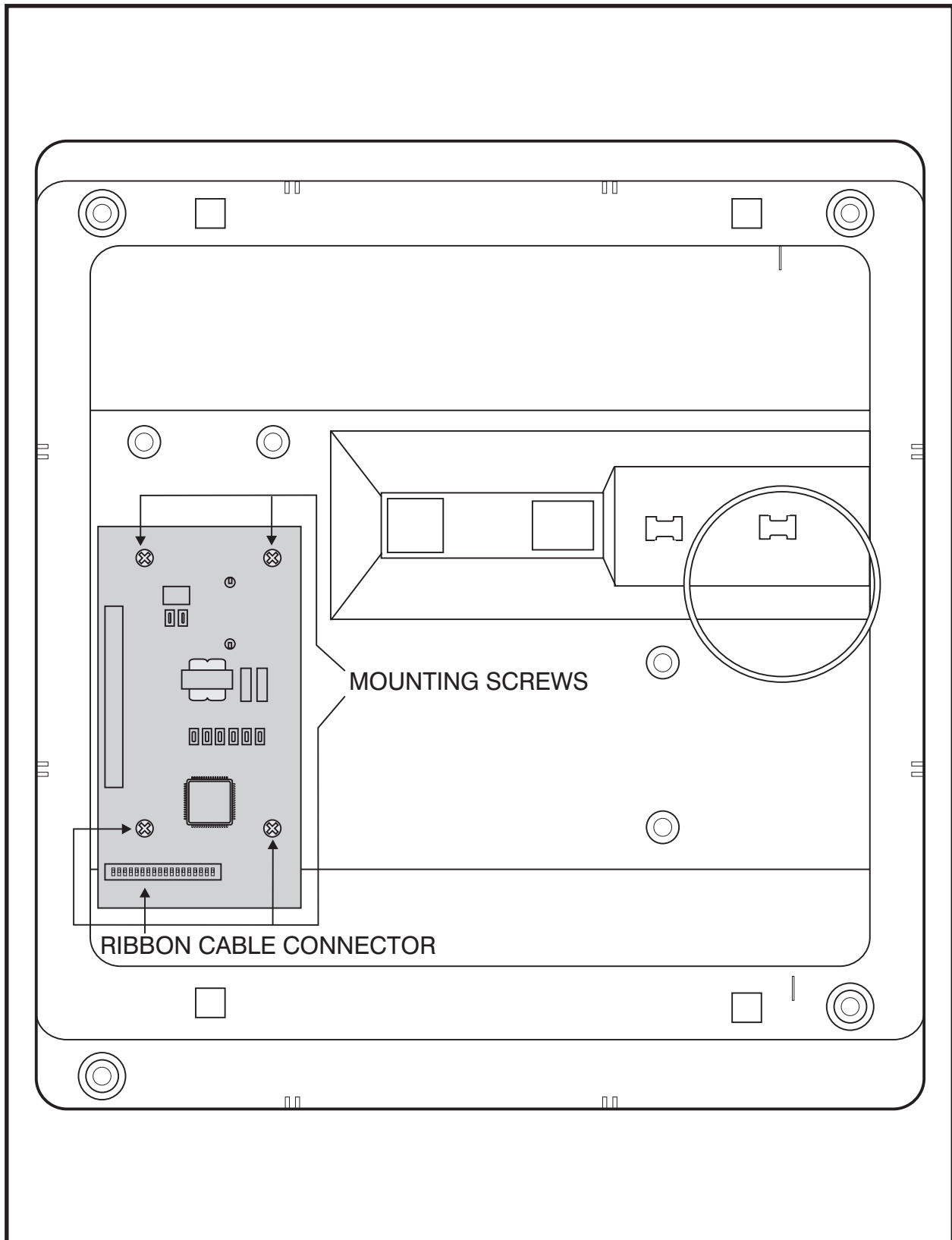
There are two methods for connecting devices to keyset daughterboards. The simplest method is to connect the second device directly by means of a line cord ([see Figures 8-6 and 8-7](#)).

The second method is to use a multi-pair station cable, connecting separate station jacks to the first two pairs. A line cord can now be connected between the daughterboard and the second jack. This will return the daughterboard port to the MDF for cross-connection to another cable run ([see Figure 8-8](#)).



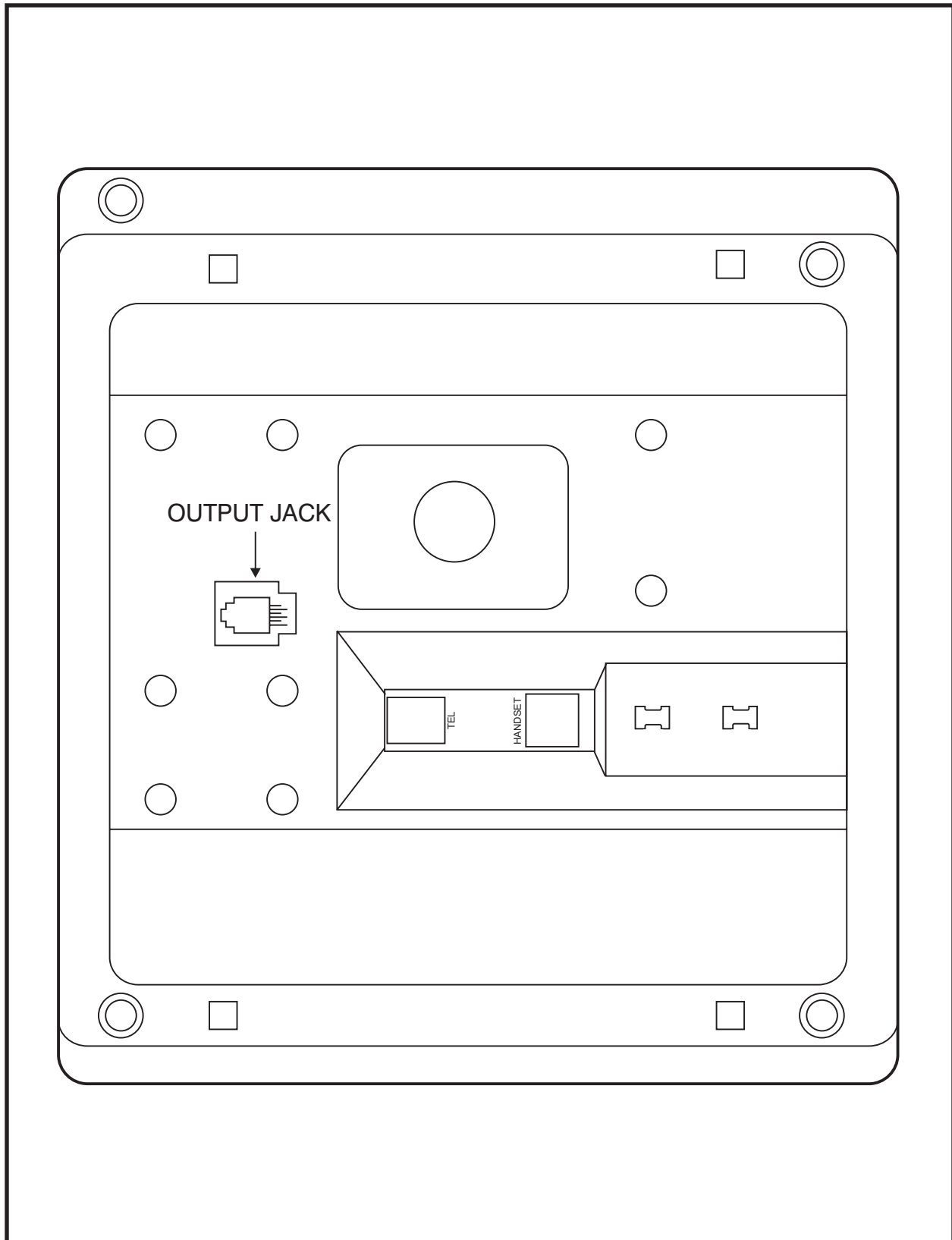
KEYSET BASE

FIGURE 8-1



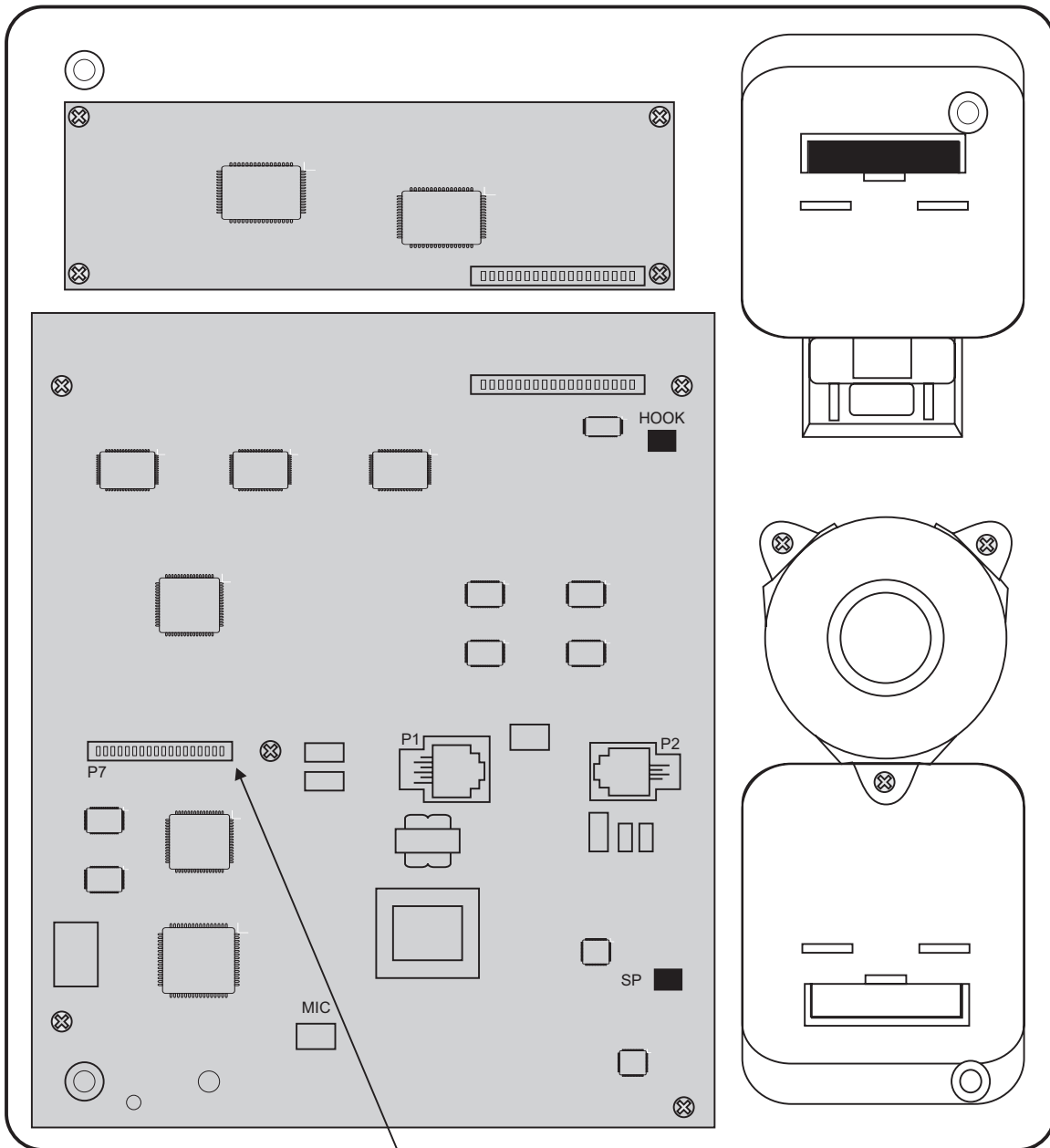
INSTALLING KDB
DLI DAUGHTERBOARD

FIGURE 8-2



KEYSET DAUGHTERBOARD
OUTPUT JACK

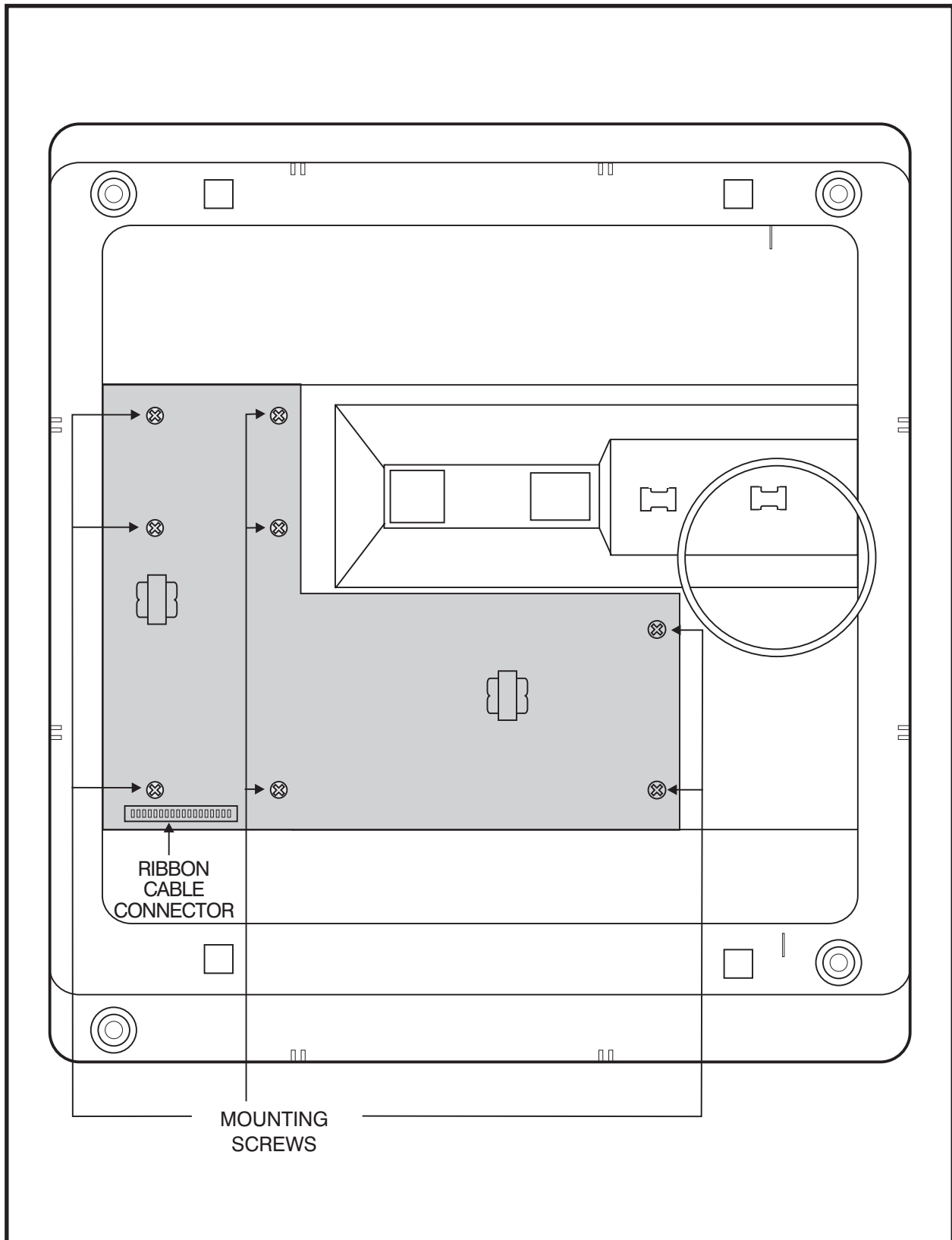
FIGURE 8-3



PLUG RIBBON CABLE FROM DAUGHTERBOARD
INTO RIBBON CABLE CONNECTOR P7

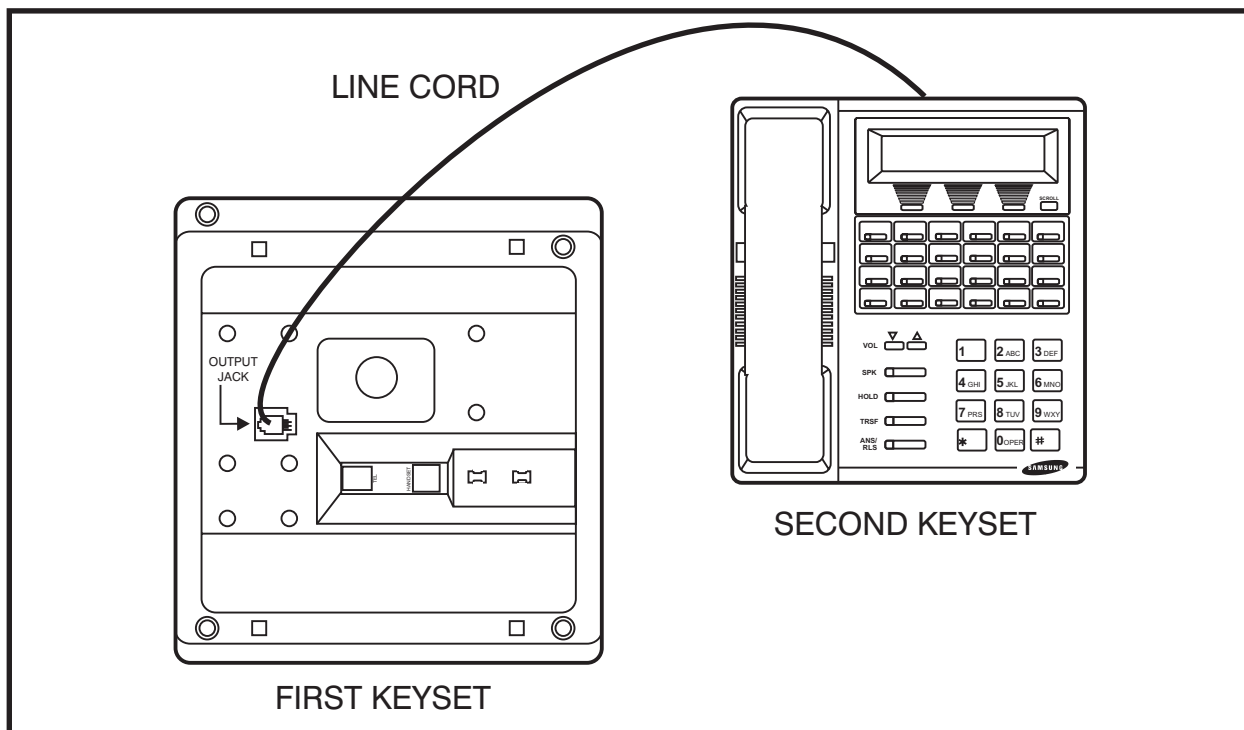
CONNECTING KEYSET
DAUGHTERBOARD TO
KEYSET PCB

FIGURE 8-4



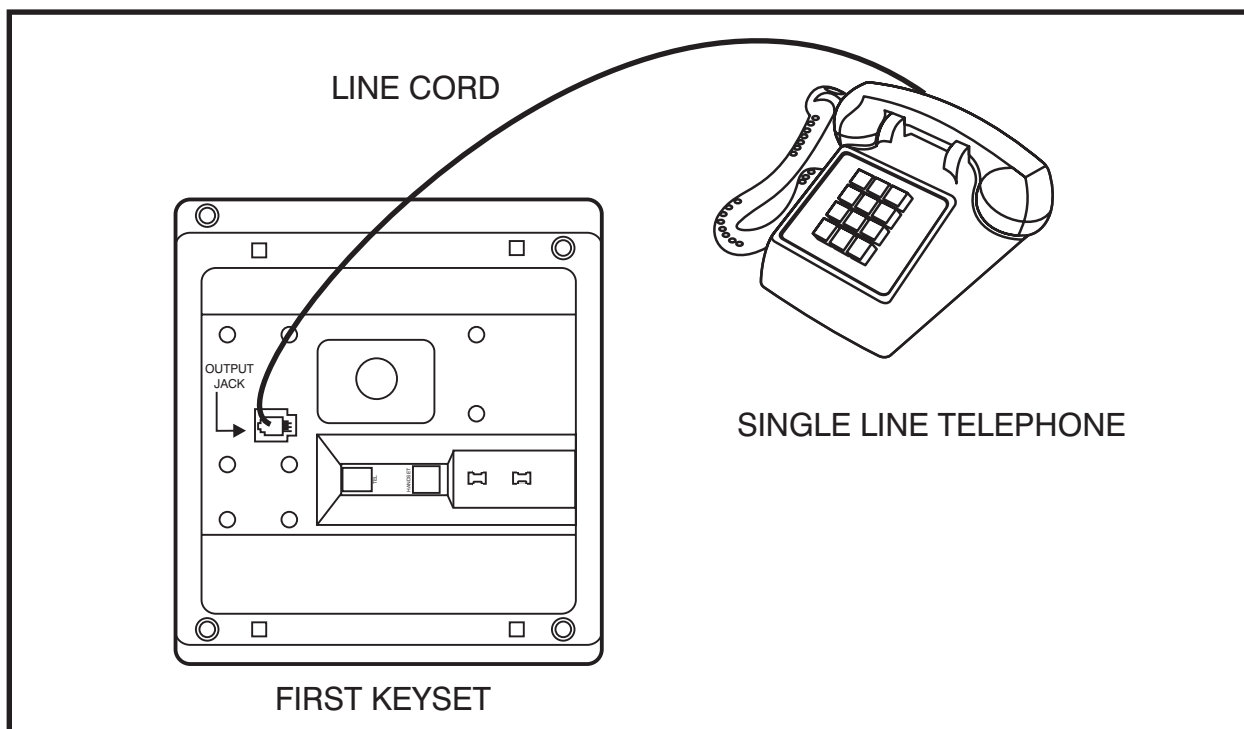
INSTALLING KDB
SLI DAUGHTERBOARD

FIGURE 8-5



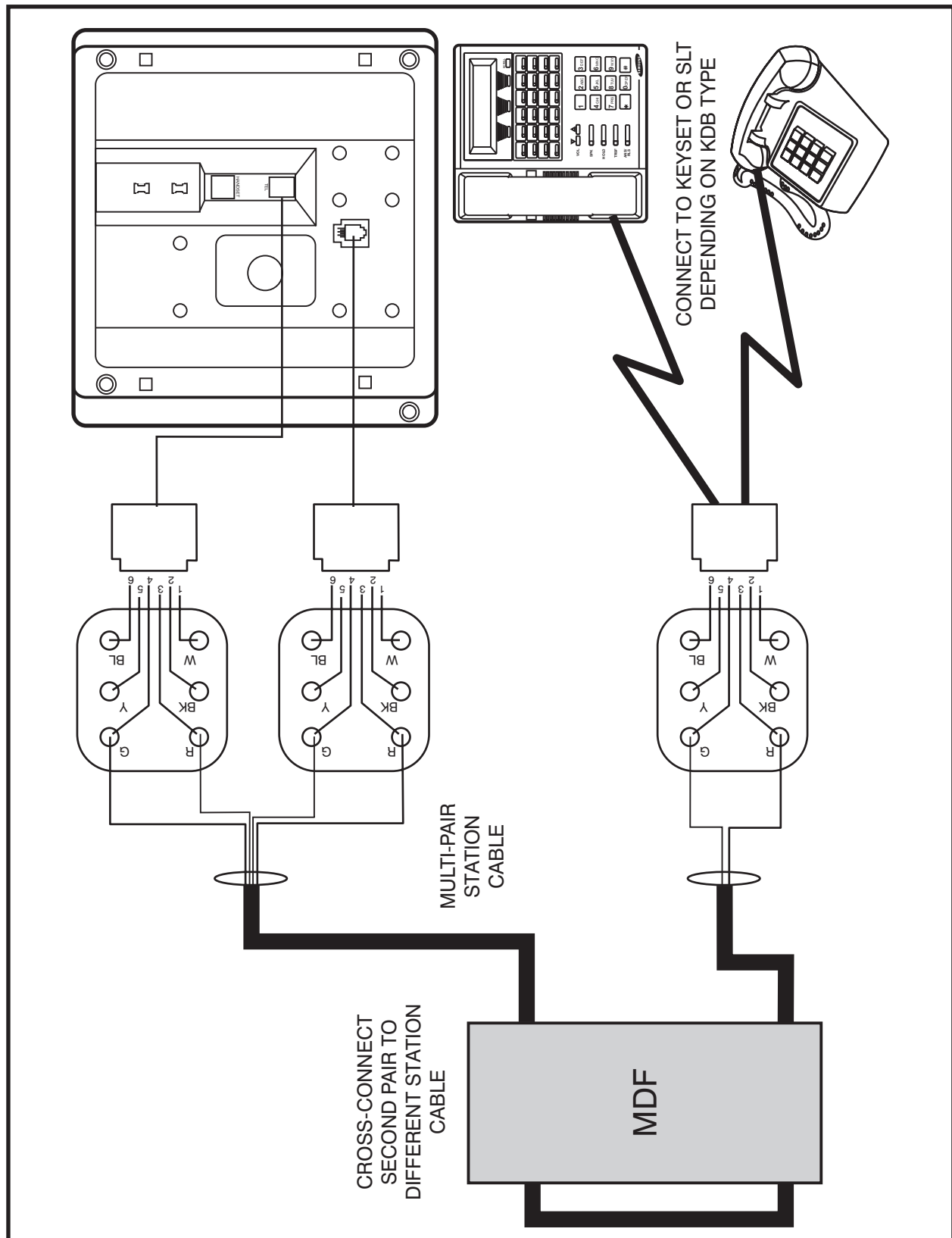
CONNECTING A KEYSET
TO A KDB-DLI

FIGURE 8-6



CONNECTING A SINGLE LINE
TELEPHONE TO A KDB-SLI

FIGURE 8-7



CONNECTING A STATION DEVICE
TO A KDB VIA THE MAIN
DISTRIBUTION FRAME

FIGURE 8-8

PART 9. CHANGING SOFTWARE

9.1 REPLACING THE EPROMS

The first thing you should do before proceeding is to discharge any static electricity you may have gathered by touching a ground point such as the cover of the KSU Power Supply. When you have done this then check the iDCS MEM3 card and ensure that the memory switch is in the ON position. Next turn the KSU off and disconnect the backup batteries, if equipped, from the power supply. Remove the iDCS MEM3 card by gently pulling on the card ejectors. Lay the iDCS MEM3 card face up on a non-conductive surface.

NOTE: It is advisable to use PCMMC to produce a backup copy of the customer database before turning the system off in case problems arise and the original database on the iDCS MEM3 card is lost.

Gently remove the EPROMS from the iDCS MEM3 card using a chip extraction tool or by gently prying with a small flat bladed screwdriver. Set the removed EPROMS aside carefully in case they need to be reinstalled ([see Figure 9-1](#)).

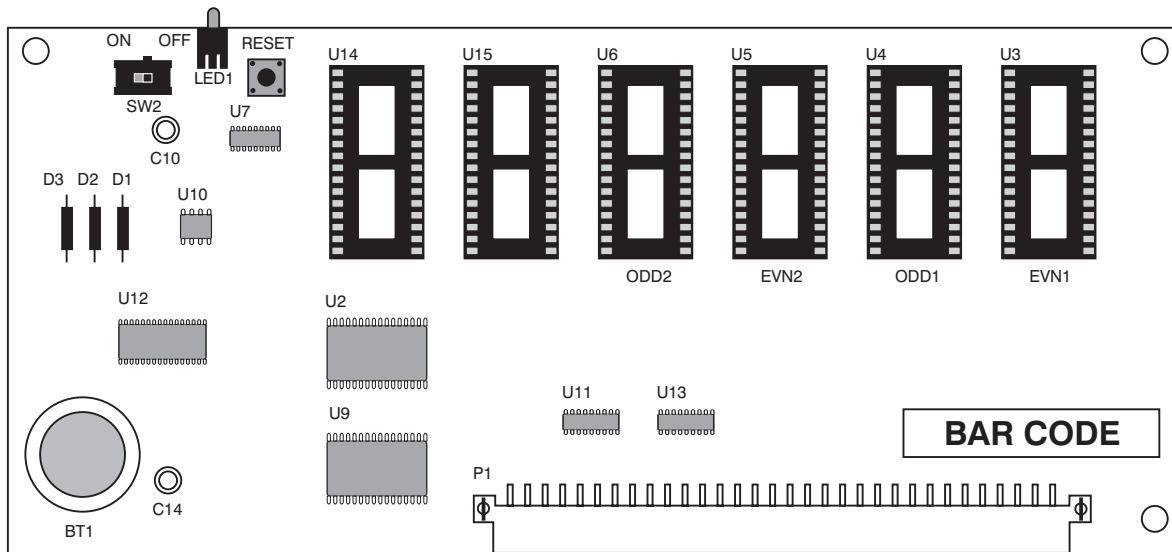
Remove the new EPROMS from their protective packaging and confirm that the legs on the EPROMS are straight. If the legs are not straight, contact Samsung Technical Support for assistance. Carefully insert the new EPROMS in their designated sockets.

Install the MEM3 card and plug in the 25 pair cable for P1 of the motherboard.

Switch on the KSU and verify that it is operating. If the KSU does not operate, remove the new EPROMS and reinstall the old EPROMS and test again. If the system still fails to operate, contact Samsung Technical Support.

9.2 SOFTWARE UPGRADE VIA iDCS PCMMC (MEM4 ONLY)

When a software change is required, it must be done via PCMMC through the LAN interface. Please refer to the PCMMC Technical Manual to perform a software upgrade for a MEM4 card.



iDCS MEM3 CARD

FIGURE 9-1

PART 10. INSTALLING CALLER ID

10.1 GENERAL INFORMATION

In order to install Caller ID on a iDCS 100, you must have the following pieces of iDCS 100 equipment available:

A personal computer with the latest version of PCMMC for the iDCS 100 is recommended. This will allow the original system database to be saved in the case of an upgrade to an existing system.

The iDCS 100 is compatible with both types of Caller ID as defined by BELLCORE. These are the single message format or "Number Only" sometimes referred to as standard Caller ID and the multiple message format or "Name and Number" sometimes referred to as Deluxe Caller ID. In the case of Number Only delivery, there is a translation table available to add names to the delivered number.

The MMCs related to Caller ID are listed below with a short description of their use. They are listed in the recommended order in which they should be programmed. This sequence is suggested so that the installer gets a better understanding of how the feature works. There is no technical reason to follow this sequence.

- [MMC 414 CID TRUNKS](#) This MMC is used by the technician to determine which trunks will receive Caller ID data.
- [MMC 312 ALLOW CID](#) This MMC is used by the technician to determine which keysets are allowed to receive Caller ID displays.
- [MMCs 722 and 723](#) These MMCs have had new keys related to Caller ID features added to them. It is strongly recommended that all keysets allowed Caller ID in MMC 312 are programmed with a CID key.
- [MMC 729 CID TRANSLATION](#) This MMC allows the technician to create a list of names that correspond to numbers received from the central office. These names will be displayed when a call rings in that has Number Only data provided by the CO.
- [MMC 725 SMDR OPTIONS](#) The ability to print Caller ID data and abandoned calls has been added to this MMC.

- [MMC 119 CID DISPLAY](#) This MMC is used by the end user to determine which piece of Caller ID data is displayed when a call rings at the user's station.
- [MMC 501 SYSTEM TIMERS](#) This MMC has two new timers related to Caller ID. The only timer that may need adjustment is the CID DISPLAY TIME. This is the length of time that CID data will be displayed after the CID key is pressed.
- [MMC 415 TRK ABANDON](#) This MMC is used by the technician to determine which trunks will record data in the Call Abandon list and print with an Abandon "A" flag on SMDR.
- [MMC 608 CID BLOCK](#) This MMC is used by the technician to assign CID Review blocks to keysets to allow the user to review CID data for previous calls.
- [MMC 701 CLASS OF SERVICE](#) All of the Caller ID features have been added to this MMC to enable the technician to allow or deny them.
- [MMC 724 NUMBER PLAN](#) The Caller ID features have been added to this MMC to allow a technician to assign an access code where necessary.

PART 11. ADDING CARDS TO AN EXISTING SYSTEM

11.1 ADDING AN SMISC CARD

1. Check the battery switch on the MEM3 or MEM4 card and make sure it is ON.
2. Turn off power to the system and unplug the power cord.
3. Insert the SMISC2 card into the slot labeled MISC.
4. Restore power to the system.
5. Open system programming and use [MMC 806](#) to initialize the card.
6. Use [MMC 724](#) to assign directory numbers to the ports on the card. The port numbers and recommended directory numbers are listed in the table below. These directory numbers are the same as the numbers that would have been assigned when the system was first installed.

ITEM	PORT NUMBER	DIRECTORY NUMBER
AA PORT 1	023	381
AA PORT 2	024	382
AA PORT 3	025	383
AA PORT 4	026	384
MOH/BGM 2	027	372
PAGE OUTPUT 2	028	362
RELAY 1	029	363
RELAY 2	030	364
RELAY 3	031	365
ALARM SENSOR	032	352

11.2 ADDING A 2 SLI CARD

1. Check the battery switch on the MEM3 or MEM4 card and make sure it is ON.
2. Turn off power to the system and unplug the power cord.
3. Insert the 2 SLI card into the slot labeled SLI.
4. Restore power to the system.
5. Open system programming and use [MMC 806](#) to initialize the card.
6. Use [MMC 724](#) to assign directory numbers to the ports on the card. The port numbers for the 2 SLI are listed in the following table.

ITEM	PORT NUMBER
SLI PORT 1	019
SLI PORT 2	020

11.3 ADDING AN S3TRK CARD

1. Check the battery switch on the MEM3 or MEM4 card and make sure it is ON.
2. Turn off power to the system and unplug the power cord.
3. Insert the S3 TRK card into an empty universal slot.
4. Restore power to the system.
5. Open system programming and use [MMC 806](#) to initialize the card.
6. Use [MMC 724](#) to assign directory numbers to the ports on the card. The S3 TRK card uses the first three ports of each slot ([see figure 11-1](#)).

11.4 ADDING AN S6TRK CARD

1. Check the battery switch on the MEM3 or MEM4 card and make sure it is ON.
2. Turn off power to the system and unplug the power cord.
3. Insert the S6 TRK card into an empty universal slot.
4. Restore power to the system.
5. Open system programming and use [MMC 806](#) to initialize the card.
6. Use [MMC 724](#) to assign directory numbers to the ports on the card. The S6 TRK card uses the first six ports of each slot ([see figure 11-1](#)).

11.5 ADDING AN S8DLI CARD

1. Check the battery switch on the MEM3 or MEM4 card and make sure it is ON.
2. Turn off power to the system and unplug the power cord.
3. Insert the S8 DLI card into an empty universal slot.
4. Restore power to the system.
5. Open system programming and use [MMC 806](#) to initialize the card.
6. Use [MMC 724](#) to assign directory numbers to the ports on the card. The S8 DLI card uses all 8 ports of each slot ([see figure 11-1](#)).

11.6 ADDING AN S8SLI CARD

1. Check the battery switch on the MEM3 or MEM4 card and make sure it is ON.
2. Turn off power to the system and unplug the power cord.
3. Insert the S8 SLI card into an empty universal slot.
4. Restore power to the system.
5. Open system programming and use [MMC 806](#) to initialize the card.
6. Use [MMC 724](#) to assign directory numbers to the ports on the card. The 8 card SLI uses all 8 ports of each slot ([see figure 11-1](#)).

11.7 ADDING A 2 X 4 CARD

1. Check the battery switch on the MEM3 or MEM4 card and make sure it is ON.
2. Turn off power to the system and unplug the power cord.
3. Insert the 2 X 4 card into an empty universal slot.
4. Restore power to the system.
5. Open system programming and use [MMC 806](#) to initialize the card.
6. Use [MMC 724](#) to assign directory numbers to the ports on the card. The 2 X 4 card uses the first six ports of each slot ([see figure 11-1](#)). The first two ports are the CO lines and the third through sixth are the station ports.

11.8 ADDING AN S4BRI CARD

1. Check the battery switch on the MEM3 or MEM4 card and make sure it is ON.
2. Turn off power to the system and unplug the power cord.
3. Insert the card into an empty universal slot.
4. Restore power to the system.
5. Open system programming and use [MMC 806](#) to initialize the card.
6. Use [MMC 724](#) to assign directory numbers to the ports on the card. The BRI card uses all 8 ports of each slot ([see figure 11-1](#)).

NOTE: SPLP required in system to support S4BRI operation.

KSU PORT NUMBERS			EKSU PORT NUMBERS			
SLOT 1	SLOT 2	SLOT 3	SLOT 1	SLOT 2	SLOT 3	SLOT 4
033	041	049	057	065	073	081
034	042	050	058	066	074	082
035	043	051	059	067	075	083
036	044	052	060	068	076	084
037	045	053	061	069	077	085
038	046	054	062	070	078	086
039	047	055	063	071	079	087
040	048	056	064	072	080	088

FIGURE 11-1

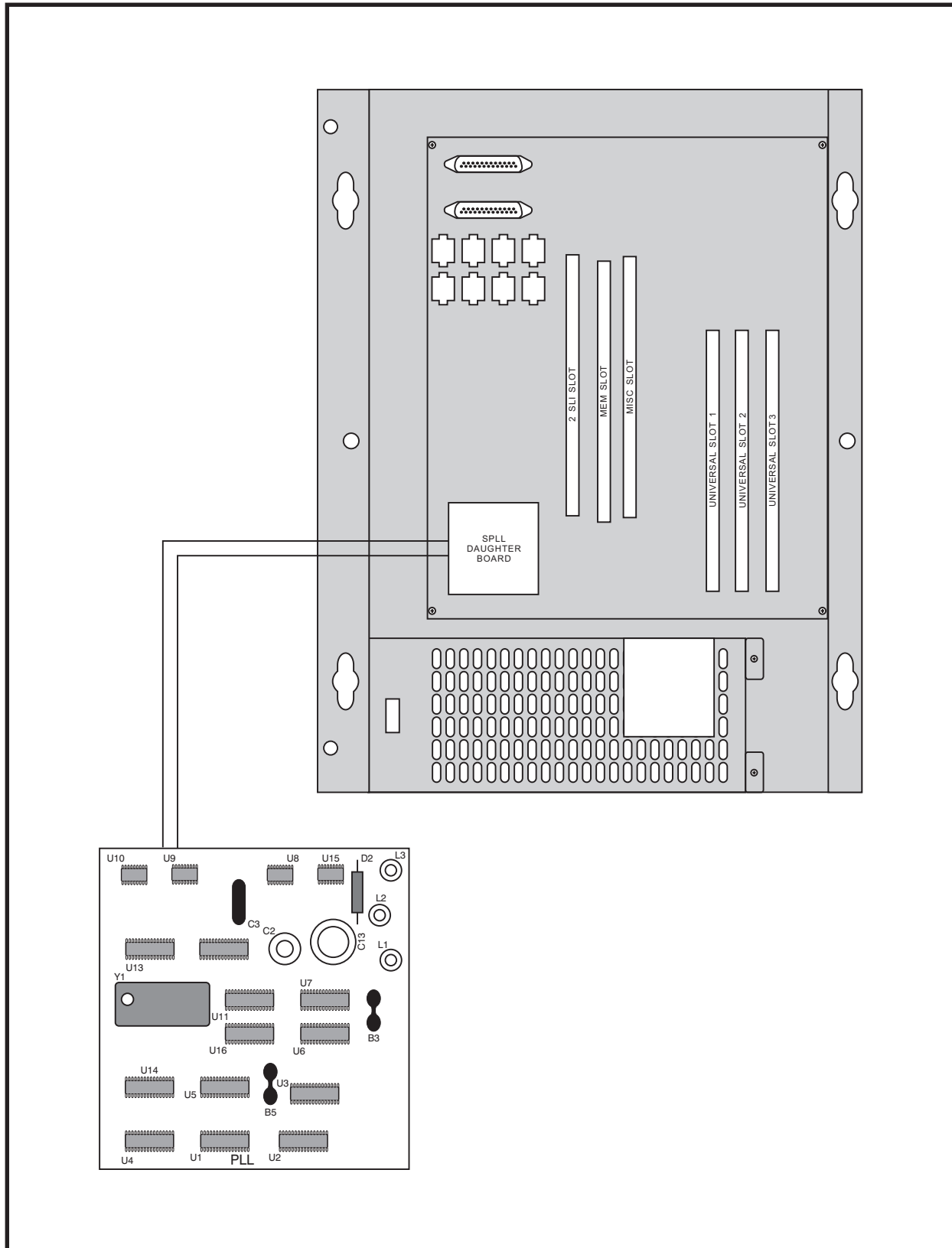
11.9 ADDING AN SPLL DAUGHTER BOARD

1. Check the battery switch on the MEM3 or MEM4 card and make sure it is on.
2. Turn off power to the system and unplug the power cord.
3. Install the SPLL card onto its connectors in the bottom left hand corner of the KSU motherboard ([see Figure 11-2](#)).
4. Restore power to the system.

NOTE: The SPLL DAUGHTER BOARD is required in system to support BRI operation.

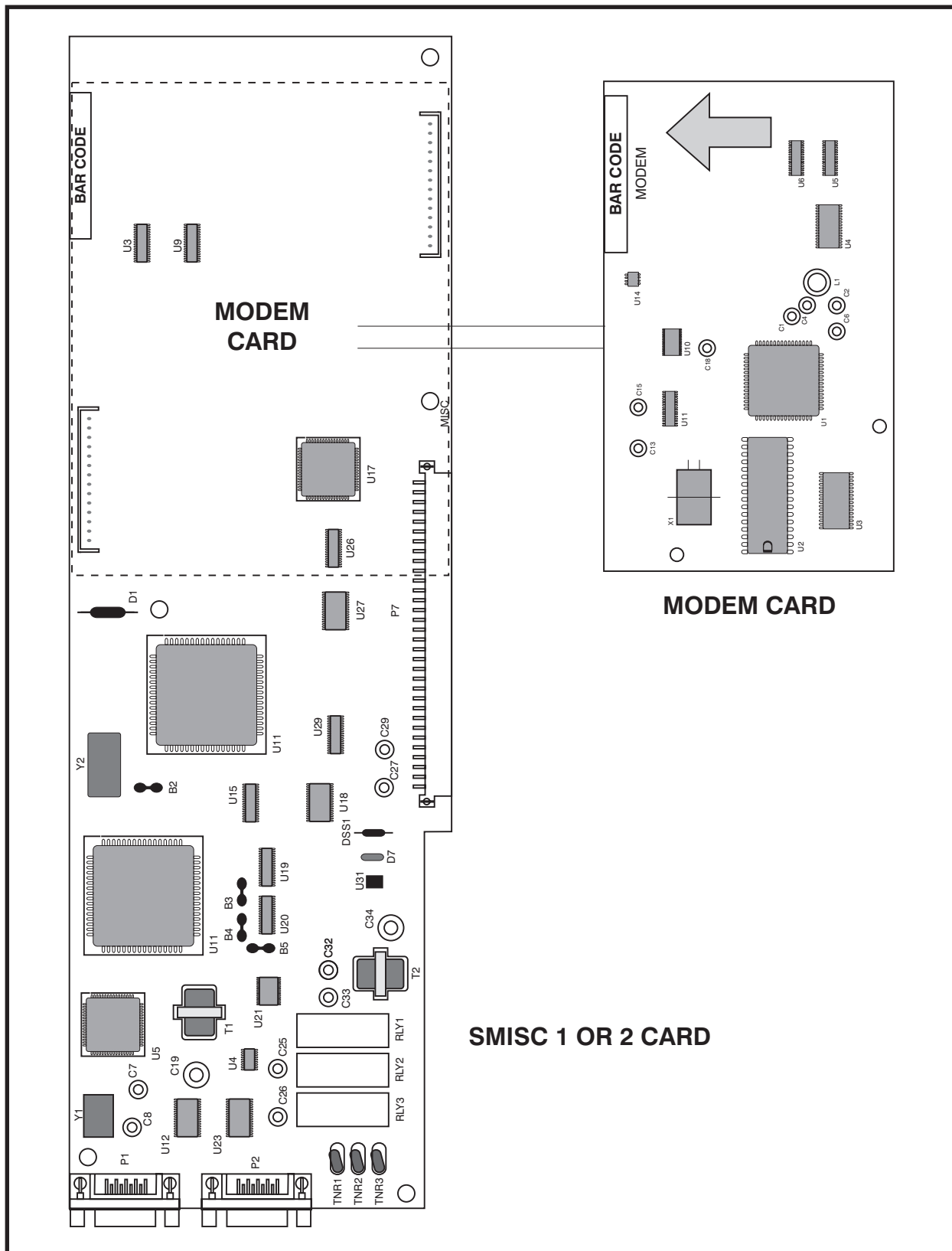
11.10 ADDING A MODEM CARD

1. Check the battery switch on the MEM3 or MEM4 card and make sure it is on.
2. Turn off the power to the system and unplug the power cord.
3. Remove the SMISC card from its slot, and lay card on a soft surface, component side up.
4. Install the MODEM card onto its connectors on the SMISC card ([see Figure 11-3](#)).
NOTE: The white arrow on the MODEM card should point away from the KSU Motherboard when SMISC card is re-inserted.
5. Re-insert SMISC card into the appropriate slot.
6. Restore power to the system.
7. Open system programming and use [MMC 806](#) to initialize the card.
8. Use [MMC 724](#) to assign a directory number to the card, the default extension number is 359.



SPLL INSTALLATION ON
KSU MOTHERBOARD

FIGURE 11-2



MODEM CARD INSTALLATION ON
SMISC CARD

FIGURE 11-3

PART 12. INSTALLING A SVMi-8 CARD

12.1 SYSTEM SIZE WITH SVMi-8

For the purpose of assigning system resources the SVMi-8 card consumes the equivalent system capacity of 8 keysets. This means that when a SVMi-8 card is installed in the iDCS 100 the system can now support a maximum of 32 (or 48 with SPSU2) station devices. This capacity includes keysets, any device connected to a keyset port, SLTs and keyset daughter boards.

12.2 REMOVING THE COVER

Before the SVMi-8 card can be installed in the iDCS 100 the card module must first be disassembled to allow the card to fit the slot. To disassemble the SVMi-8 card, first remove the ejector tabs by pulling them outward until they snap off. Next, to separate the two halves of the casing, remove the four screws and pull the two halves apart. This releases the SVMi-8 card PCB.

12.3 ADDING A SECOND VOICE PROCESSING MODULE (VPM)

The first thing you should do before proceeding is to discharge any static electricity you may have gathered by touching a ground point such as the cover of the KSU Power Supply. When you have done this then lay the SVMi-8 card face up on a non-conductive surface.

Position the second VPM over the card connector on the SVMi-8 base board and gently apply pressure until the card seats. The SVMi-8 card can now be installed in the KSU.

12.4 INSERTING THE CARD

The SVMi-8 card is installed in the far right slot of the expansion cabinet. This is the slot with the black DCS style connector. The first thing you should do before proceeding is to discharge any static electricity you may have gathered by touching a ground point such as the cover of the KSU Power Supply. When you have done this then check the power switch on the left-hand side of the KSU and ensure that the switch is in the OFF position. Next position the SVMi-8 card in the grooves of the card guide and gently slide the card in until it makes contact with the connector. Press gently but firmly on the top and bottom of the front edge of the card until the card seats in its connector.

12.5 UPGRADING AN EXISTING CARD TO 8 PORTS

The first thing you should do before proceeding is to discharge any static electricity you may have gathered by touching a ground point such as the cover of the KSU

Power Supply. When you have done this then check the MEM3 or MEM4 card and ensure that the memory switch is in the ON position. Next turn the KSU off and remove the SVMi-8 card by gently pulling on the card. Lay the SVMi-8 card face up on a non-conductive surface.

Position the second VPM over the card connector on the SVMi-8 base board and gently apply pressure until the card seats. The SVMi-8 card can now be reinstalled in the KSU.

PART 13. INSTALLING A SVMi-4 CARD

13.1 SYSTEM SIZE WITH A SVMi-4 CARD INSTALLED

For the purposes of assigning system resources the SVMi-4 card consumes the equivalent system capacity of 4 keysets. This means that when a SVMi-4 card is installed in the iDCS 100 the system can now support a maximum of 52 station devices. This capacity includes keysets, any device connected to a keyset port, SLTs and keyset daughter boards.

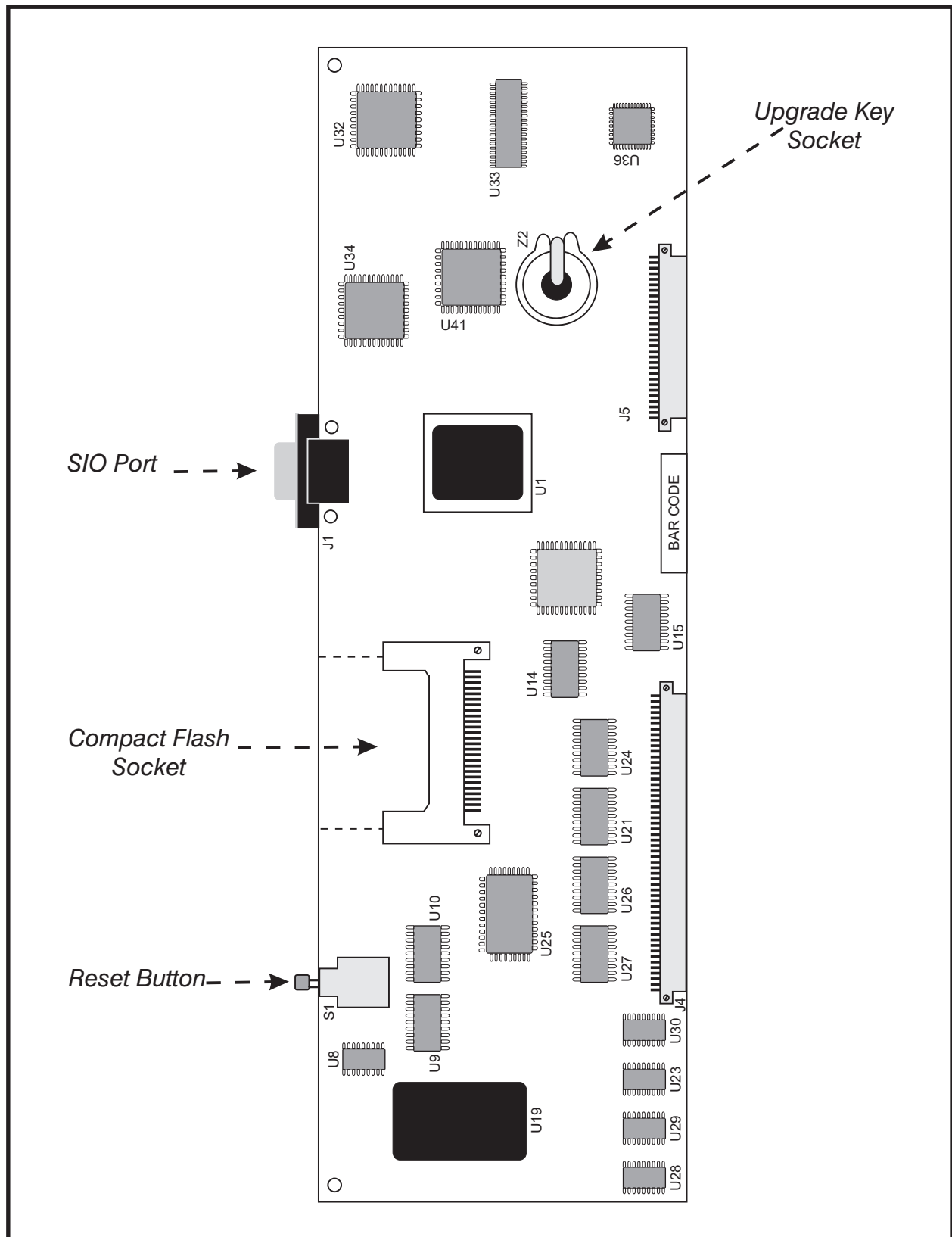
13.2 UPGRADING THE SVMi-4 TO FOUR PORTS

Before it will operate in the iDCS 100, the SVMi-4 must be upgraded to four ports as follows. Upgrading the SVMi-4 card basically means installing an upgrade key into its dedicated socket.

The first thing you should do before proceeding is to discharge any static electricity you may have gathered by touching a ground point such as the cover of the KSU Power Supply. When you have done this then lay the SVMi-4 card face up on a non-conductive surface.

Position the upgrade key over the socket ([see Figure 13-1](#)) on SVMi-4 base board with one edge of the upgrade key under the spring clip and gently apply pressure until the upgrade key seats. The SVMi-4 card can now be installed in the KSU.

Note: The upgrade key will only fit in the socket with the flat side uppermost.



SVMi-4 CARD

FIGURE 13-1